153

NO. 153

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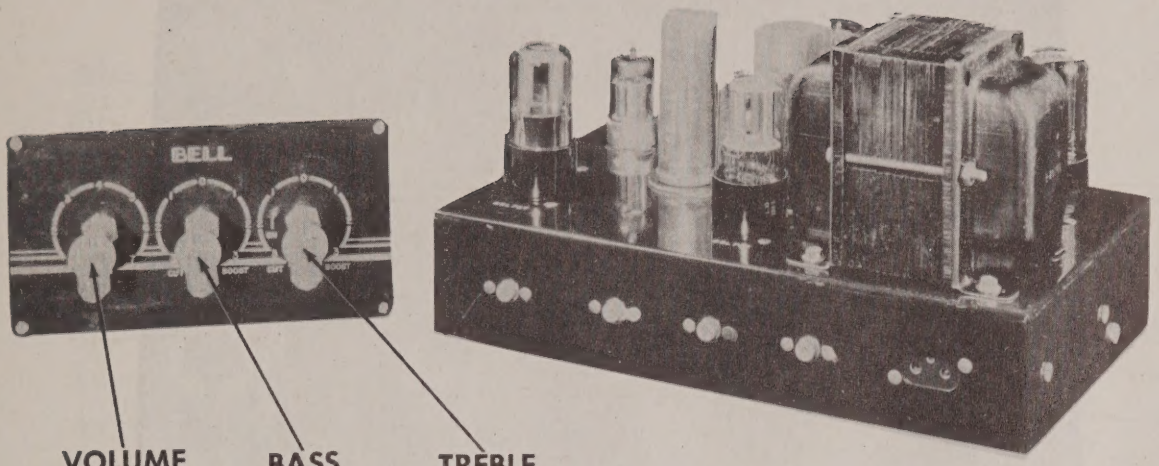
BELL SOUND
MODELS 2122A, AR



BELL SOUND
MODELS 2122A, AR

BELL SOUND MODEL 2122AR

TRADE NAME	Bell Sound, Model 2122A, 2122AR
MANUFACTURER	Bell Sound Systems Inc., 1183 Essex Ave., Columbus, Ohio
TYPE SET	AC Operated Audio Amplifier (Model 2122AR uses Remote Control)
TUBES (SIX)	Types 12AX7 Mic. Pre-Amp., 6SL7 1st. AF Amp., 6SL7 2nd. AF - Phase Inv., (2) 6V6GT Power Output, 5Y3GT Rectifier
POWER SUPPLY	110-120 Volts AC RATING .7 Amp. at 117 Volts AC

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PARTS LIST AND DESCRIPTIONS

BELL SOUND MODEL 2122A

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: Bell Sound PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RTMA BASE TYPE	INSTALLATION NOTES
V1	Mic. Pre-Amp.	12AX7	12AX7	9A	
V2	1st. AF Amplifier	6SL7	6SL7	8BD	
V3	2nd. AF Amplifier-Phase Inverter	6SL7	6SL7	8BD	
V4	Power Output	6V6GT	6V6GT	7AC	
V5	Power Output	6V6GT	6V6GT	7AC	
V6	Rectifier	5Y3GT	5Y3GT	5T	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: BELL SOUND PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C1A	30	450		AFH3-131		UPT3345C		TVL-3741	▲ Filter
B	30	450							■ Filter
C	20	25							▲ Output Cathode
C2A	20	450		AFH3-138		UPT2145V5		TVL-3751	■ Decoupling
B	10	450							▲ Decoupling
C	50	25							1st. AF Amp. Cathode
C3	150	15				BRH5015		TVA-1311	Mic. Pre-Amp. Cathode
C4	10	25		PRS25/10		BR102A		TVA-1204	2nd. AF Amp. Cathode
C5	.01	600		P688-01	D6-103	PTE6S1	GP2-333-103	6TM-S1	Audio Coupling
C6	.02	600		P688-02	DF-203	PTE6S2		6TM-S2	1st. AF Amp. Grid
C7	.0005	600			D6-501		GP2K-501	6TM-T5	1st. AF Amp. Plate
C8	.05	600		P688-05	DF-503	PTE6S5		6TM-S5	Audio Coupling
C9	300	500		1468-0003	D6-301	5W5T3	GP2K-301	MS-33	Tone Comp.
C10	.02	600		P688-02	DF-203	PTE6S2		6TM-S2	Audio Coupling
C11	.001	600		P688-001	D6-102	PTE6D1	GP2L-102	6TM-D1	Tone Comp.
C12	.003	600		P688-003	D6-302	PTE6D3	GP2-333-302	6TM-D3	Tone Comp.
C13	500	500		1468-0005	D6-501	5W5T5	GP2K-501	1FM-35	Tone Comp.
C14	.003	600		P688-003	D6-302	PTE6D3	GP2-333-302	6TM-D3	Tone Comp.
C15	75	500		1468-000075	D6-750		GP1K-750	1FM-475	Tone Comp. *
C16	.05	600		P688-05	DF-503	PTE6S5		6TM-S5	Audio Coupling
C17	100	500		1468-0001	D6-101	5W5T1	GP1K-101	1FM-31	Power Output Grid
C18	.05	600		P688-05	DF-503	PTE6S5		6TM-S5	Audio Coupling
C19	.05	600		P688-05	DF-503	PTE6S5		6TM-S5	Line Filter *

* Not used in all models.
† Some models use 300MMF in this application.
‡ Some models use .003MFD. in this application.

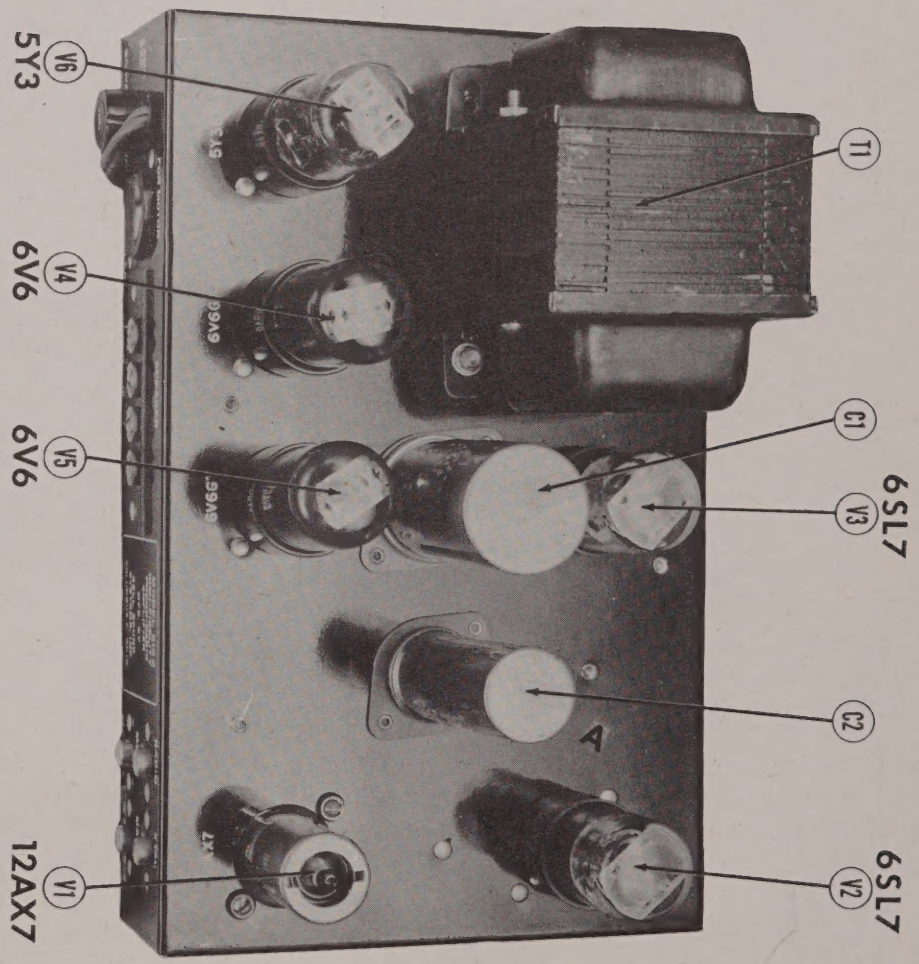
CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: Bell Sound PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	INSTALLATION NOTES
R1A	1Meg	½		PQ13-137	AG-63-Z	B-70-S	Treble Tone Control
B	Shaft			Not req.	RS-3	Not req.	Attach to R1A per instructions
C	Switch			76-1	SWB	Not req.	Attach to R1Aper instructions
R2A	1Meg	½	B20066P82	PQ13-137	AG-63-Z	B-70	Bass Tone Control
B	Shaft		Not req.	Not req.	RS-3	Not req.	Attach to R2A per instructions
R3A	100KΩ	½	B20066P81	PQ13-128	AG-51-Z	B-41	Volume Control
B	Shaft		Not req.	Not req.	RS-3	Not req.	Attach to R3A per instructions

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: BELL SOUND PART No.	IRC PART No.	IDENTIFICATION CODES
R4	47KΩ	½		BTS-47K	Input Shunt
R5	33KΩ	½		BTS-33K	Input Shunt - See Note
R6	270KΩ	½		BTS-270K	Mike Pre-Amp. Grid
R7	3300Ω	1		BTA-3300	Mike Pre-Amp. Cathode
R8	27KΩ	½		BTS-27K	Mike Pre-Amp. Plate
R9	100KΩ	½		BTS-100K	Isolation
R10	10KΩ	½		BTS-10K	1st. AF Amp. Grid

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	BELL SOUND PART No.	IRC PART No.	
R11	82KΩ	½		BTS-82K	1st. AF Amp. Grid
R12	2200Ω	½		BTS-2200	1st. AF Amp. Cathode
R13	100KΩ	½		BTS-100K	1st. AF Amp. Plate
R14	270KΩ	½		BTS-270K	1st. AF Amp. Plate
R15	100KΩ	½		BTS-100K	Decoupling
R16	1Meg	½		BTS-1Meg	Series Phono
R17	220KΩ	½		BTS-220K	Tone Compensation
R18	270KΩ	½		BTS-270K	Isolation
R19	270KΩ	½		BTS-270K	Series Radio
R20	270KΩ	½		BTS-270K	Tone Compensation
R21	47KΩ	½		BTS-47K	Tone Compensation
R22	2200Ω	½		BTS-2200	2nd. AF Amp. Cathode
R23	100KΩ	½		BTS-100K	2nd. AF Amp. Plate
R24	100KΩ	½		BTS-100K	Phase Inverter Grid
R25	2200Ω	½		BTS-2200	Phase Inverter Cathode
R26	100KΩ	½		BTS-100K	Phase Inverter Plate
R27	47Ω	½			Feedback Network
R28	2200Ω	½		BTS-2200	Feedback Network
R29	180KΩ 5%	½			Output Grid
R30	220Ω	5		1 3/4A-225	Output Cathode - Wire Wound
R31	240KΩ 5%	½			Output Grid
R32	47KΩ	2		BTB-47K	Voltage Divider
R33	2700Ω	1		BTA-2700	Filter
R34	25KΩ	10		1 3/4A-25K	Bleeder

Note Some models use 27KΩ resistor in this application.

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA			
	PRI.	SEC. 1	SEC. 2	SEC. 3	BELL SOUND PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.
T1	117VAC @ .70A	640VCT .110ADC	5VAC @ 2A	6.3VAC @ 2A	B-20166		P-3153	PV-120 ①

① Drill new mounting holes.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		BELL SOUND PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	
	PRI.	SEC.	PRI.	SEC.					
T2	6.3KΩ CT	15Ω to 18Ω Tap 3Ω - 4Ω	350Ω CT	1.3Ω Tap .6Ω	B-20192	A-3830	A-2904	RO-307	

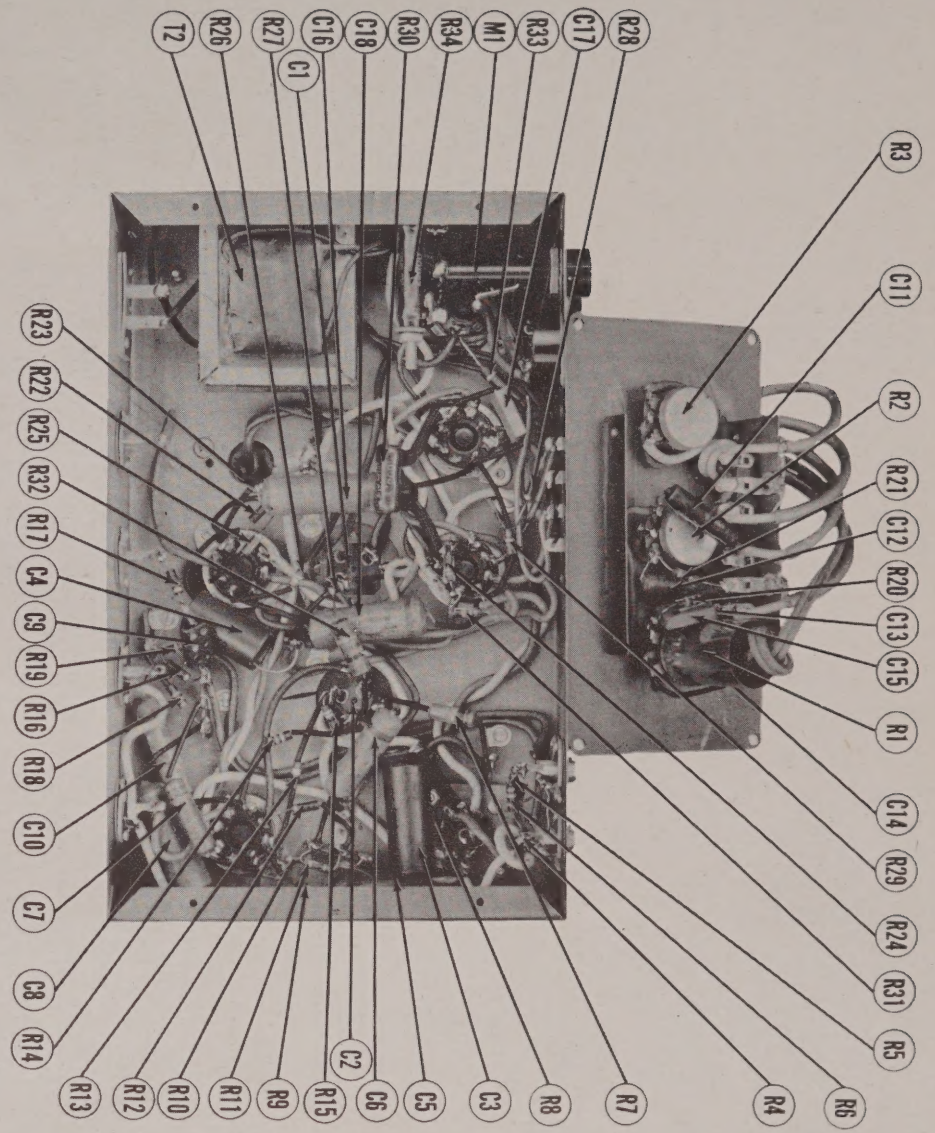
FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA				REMARKS
			BELL SOUND PART No.		LITTELFUSE PART No.		
			FUSE	HOLDER	FUSE	HOLDER	
M1	3AG	2A			312002	341001	

DIAL LIGHTS

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		NOTES
					BELL SOUND PART No.		
M2	Bayonet	6-8	.2A	White			Type # 51 (May not be used)

CHASSIS—BOTTOM VIEW

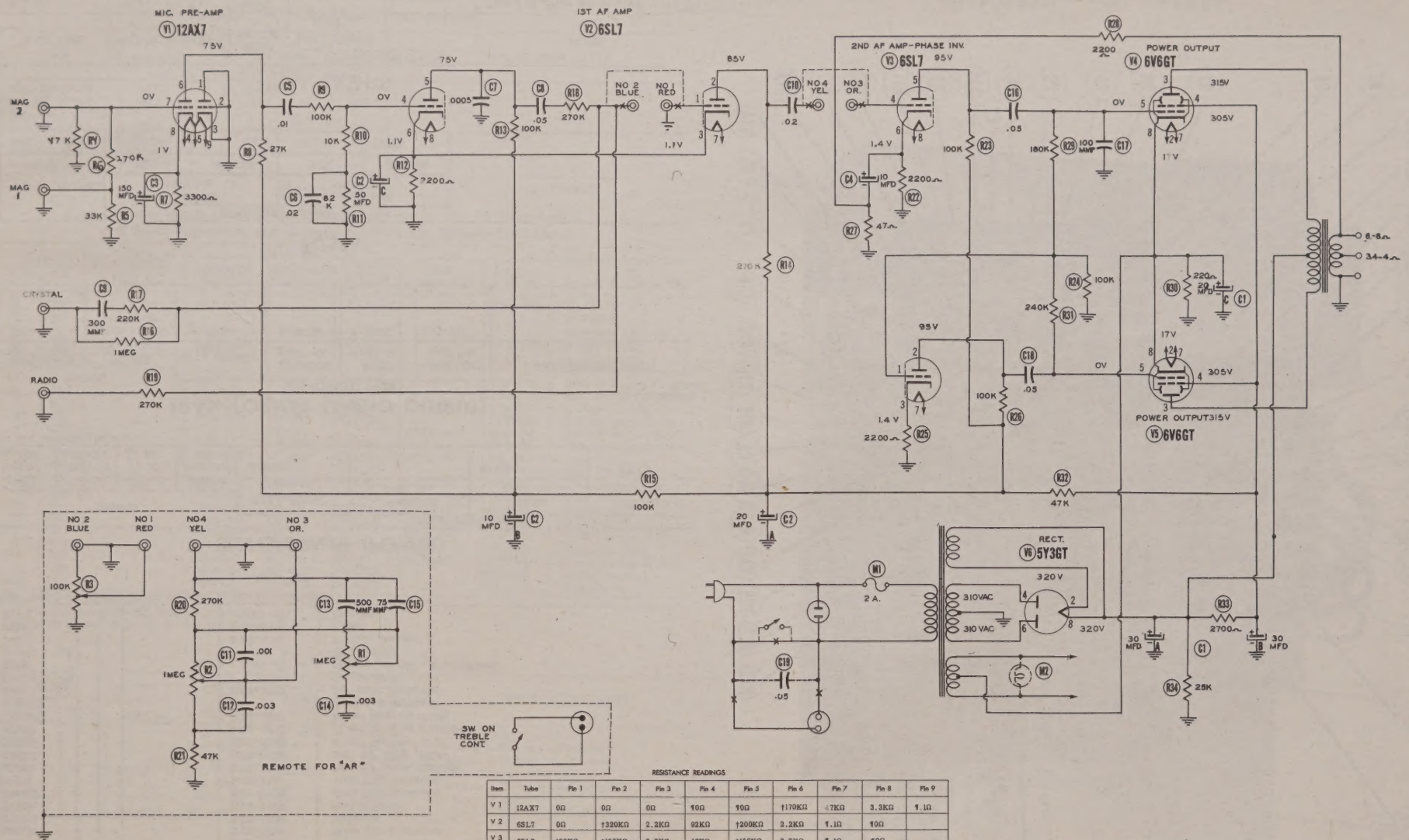


SET 153

FOLDER 1

BELL SOUND MODEL 2122A

BELL SOUND MODEL 2122A



RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	12AX7	0Ω	0Ω	0Ω	¶0Ω	¶0Ω	†170KΩ	47KΩ	3.3KΩ	¶.1Ω
V 2	6SL7	0Ω	†320KΩ	2.2KΩ	92KΩ	†200KΩ	2.2KΩ	¶.1Ω	¶0Ω	
V 3	6SL7	100KΩ	†150KΩ	2.2KΩ	47KΩ	†150KΩ	2.2KΩ	¶.1Ω	¶0Ω	
V 4	6V6GT	0Ω	¶0Ω	†175Ω	†2.7KΩ	280KΩ	Inf.	¶.1Ω	200Ω	
V 5	6V6GT	0Ω	¶0Ω	†175Ω	†2.7KΩ	340KΩ	100KΩ	¶.1Ω	200Ω	
V 6	5Y3GT	Inf.	18KΩ	Inf.	110Ω	Inf.	115Ω	Inf.	18KΩ	

¶ MEASURED FROM PIN 2 OF V5
† MEASURED FROM PIN 2 OF V6

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153-1

1 - DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1000 ohms per volt.
2 - Socket connections are shown as bottom views.
3 - Measured values are from socket pin to common negative.
4 - Line voltage maintained at volts for voltage readings.
5 - Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
6 - All controls at minimum, proper output load connected.

PHOTOFACT* Folder

*TRADE MARK

CORONADO
MODEL 05TV2-43-9010B

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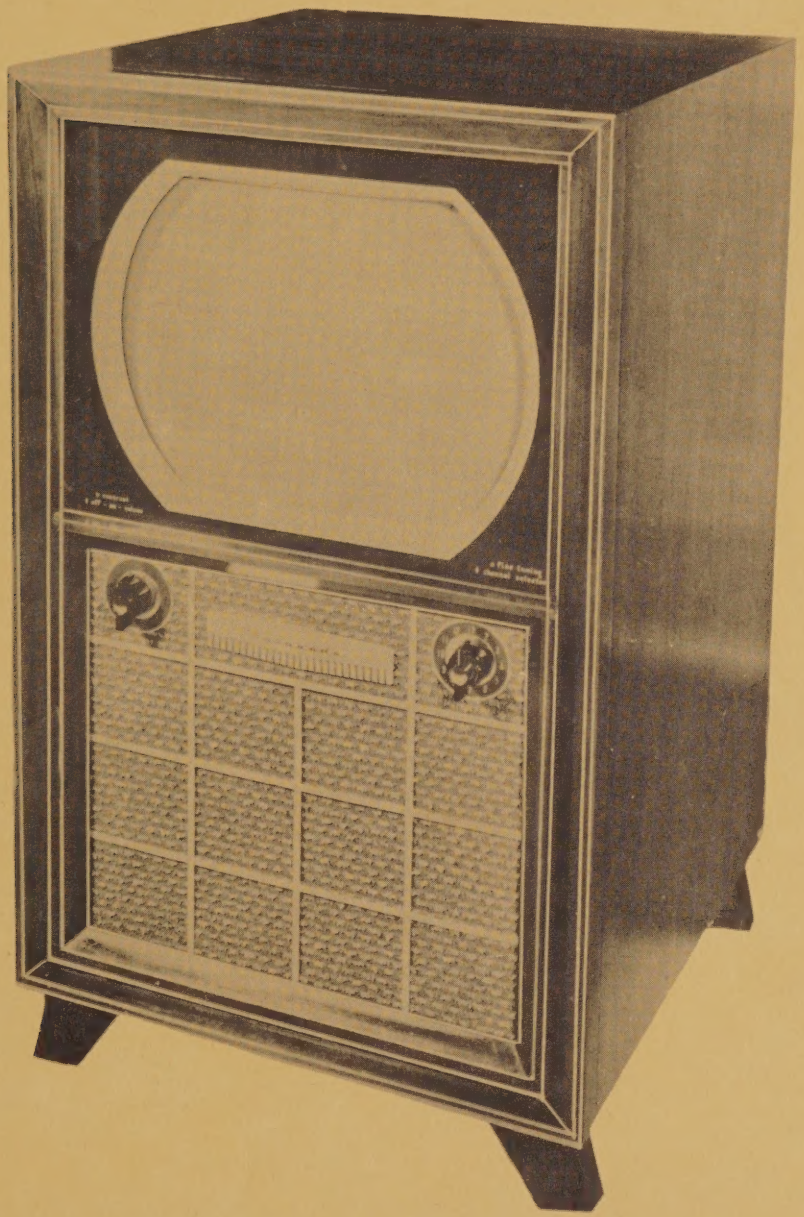
Merely insert the corresponding folder on this model in this envelope to retain proper filing and indexing order.



CORONADO
MODEL 05TV2-43-9010B

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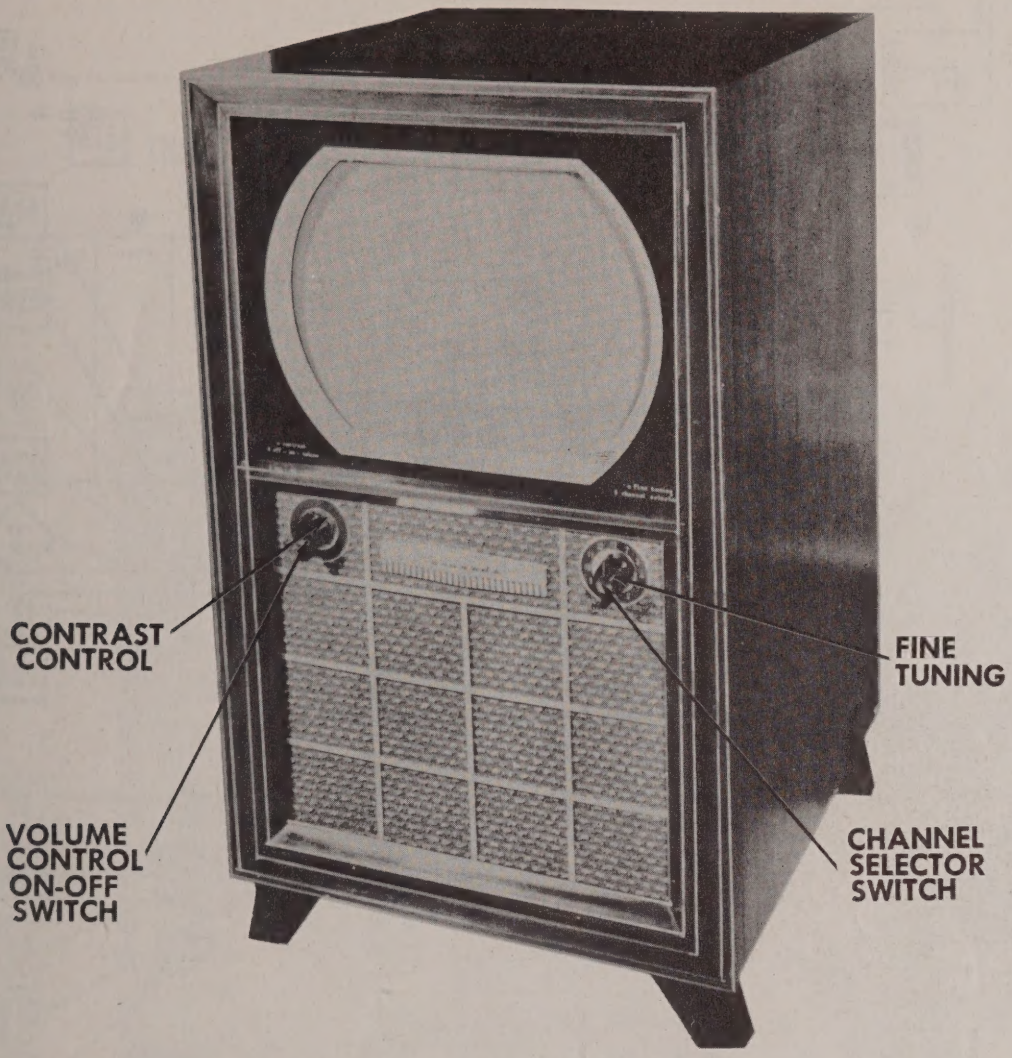
DATE 12-51 SET 153 FOLDER 2

PHOTOFACT* Folder
*TRADE MARK

CORONADO
MODEL 05TV2-43-9010B



CORONADO
MODEL 05TV2-43-9010B

TRADE NAME	Coronado, Model 05TV2-43-9010B
SUPPLIER	Gamble-Skogmo Inc., 15 N. 8th. St. Minneapolis, Minn.
TYPE SET	Television Receiver
TUBES	Twenty Three
POWER SUPPLY	110-120 Volts AC - 60 Cycle
RATING	1.9 Amp. @ 117 Volts AC
TUNING RANGE—	Channels 2 thru 13

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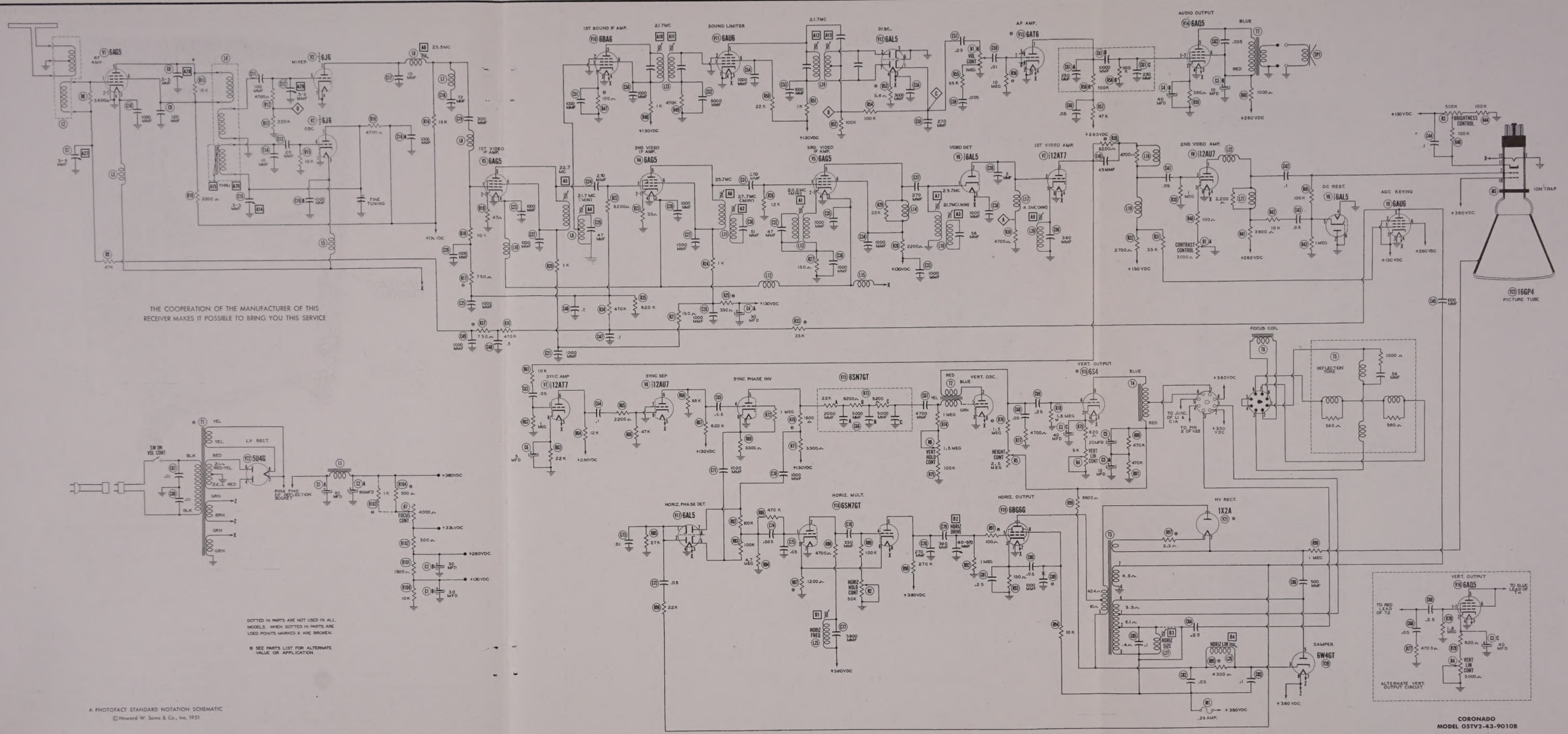
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CORONADO
MODEL 05TV2-43-9010B

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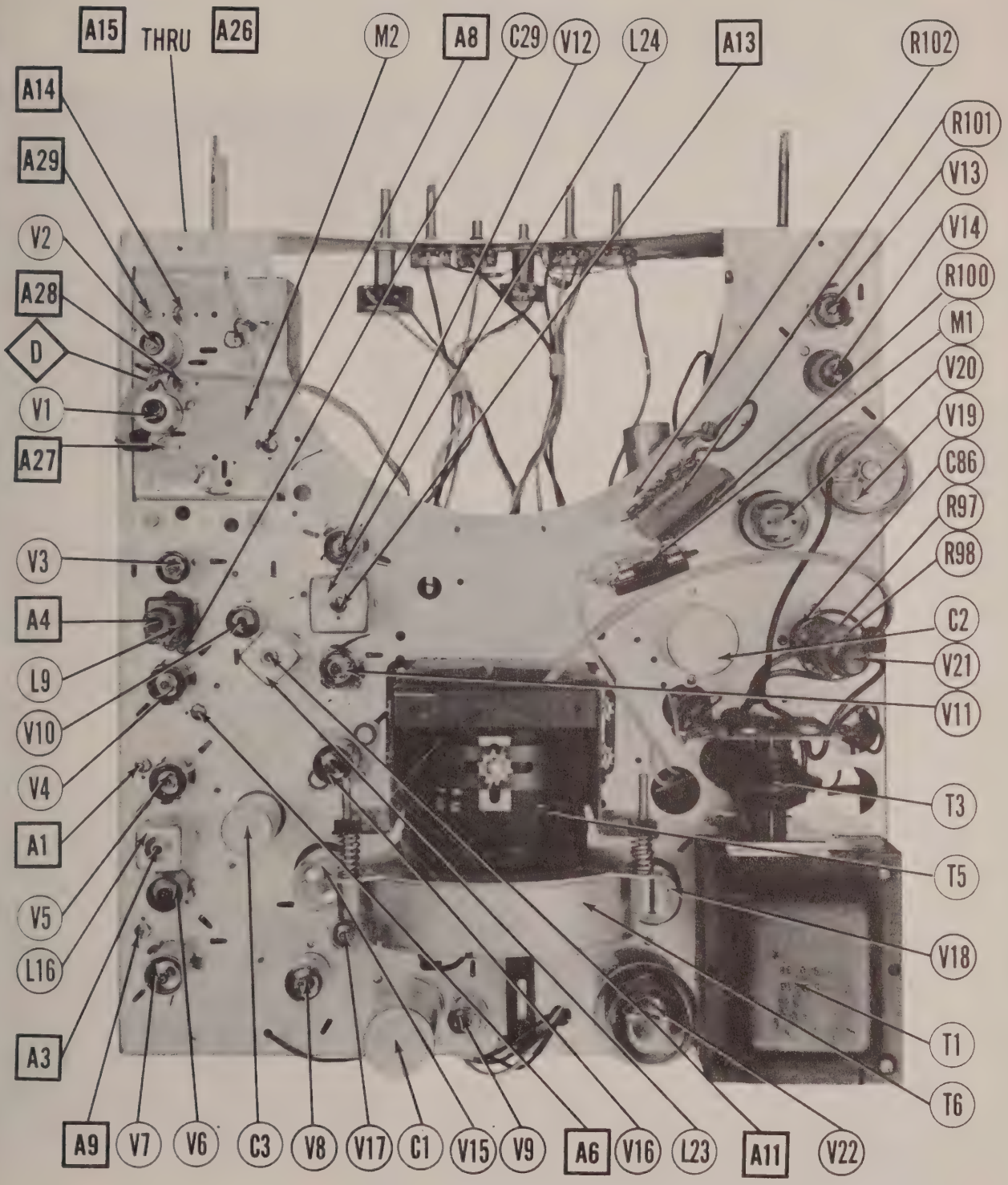
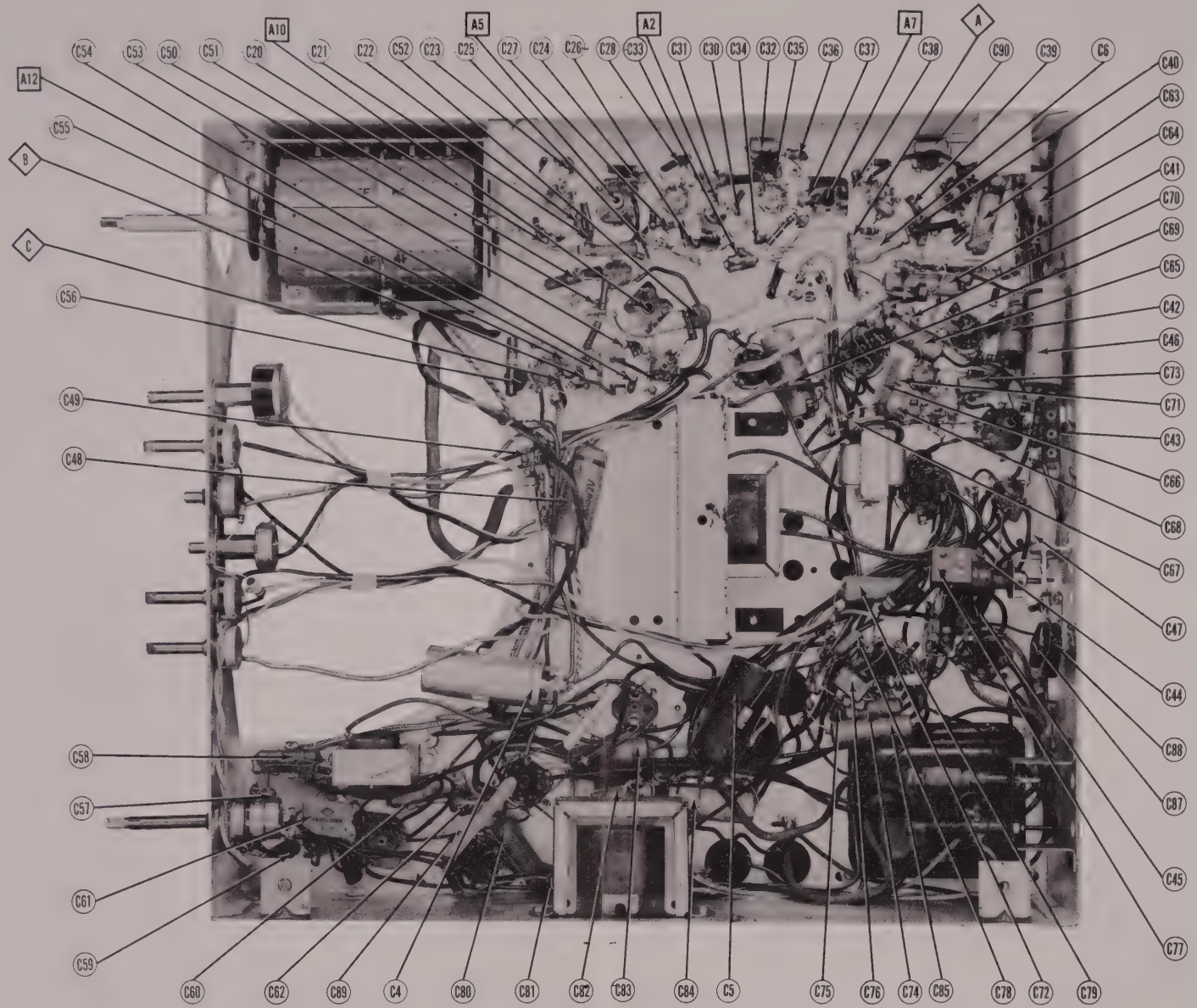
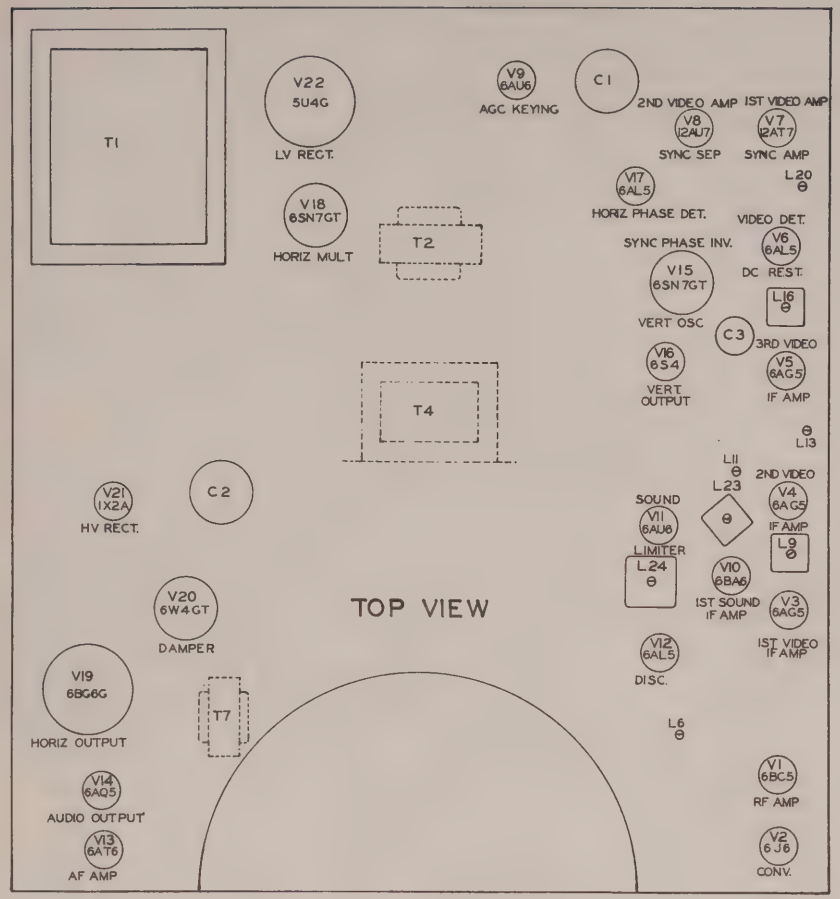
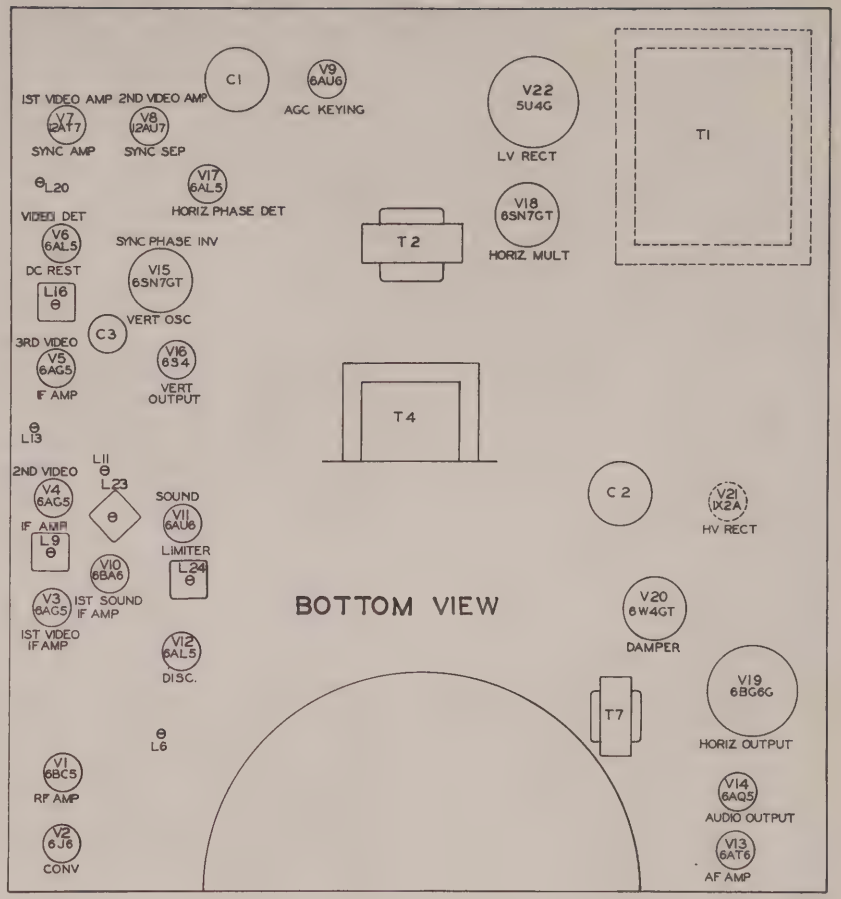


CHASSIS TOP VIEW



CHASSIS BOTTOM VIEW - CAPACITOR AND ALIGNMENT IDENTIFICATION





TUBE PLACEMENT CHART

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

The end of the high voltage lead should be securely taped and kept away from the chassis. Do not remove the horizontal oscillator tube to disable the high voltage.

VIDEO IF ALIGNMENT

Remove the converter tube, (V2) and replace it with a 6J6 which has Pin 1 removed. This will disable the local oscillator and prevent the possibility of erroneous indications.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
1.	Direct	High side to an ungrounded tube shield floating over dummy converter tube, (V2). Low side to chassis.	20.2MC (Unmod.)	Any	DC probe to Point (A). Common to chassis.	A1	Adjust for MINIMUM deflection.
2.	"	"	27.7MC	"	"	A2	"
3.	"	"	21.7MC	"	"	A3, A4	"
4.	"	"	22.7MC	"	"	A5	Adjust for maximum deflection.
5.	"	"	25.7MC	"	"	A6	"
6.	"	"	23.7MC	"	"	A7	"
7.	"	"	25.5MC	"	"	A8	"

OVERALL VIDEO IF RESPONSE CHECK

Connect the negative lead of a 3 volt battery to the ungrounded lead of C46, connect the positive lead to chassis.
Connect the synchronized sweep voltage from the signal generator to the horizontal input of the oscilloscope for horizontal deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
8.	Direct	High side to an ungrounded tube shield floating over dummy converter tube, (V2). Low side to chassis.	24MC (10MC SWP)	21.7MC 22.4MC 26.2MC	Any	Vert. amp. to Point (A). Low side to chassis.		Check for response curve similar to figure 1. If necessary retouch A5 thru A8 for proper response.

4.5MC TRAP ADJUSTMENT

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
9.	.01MFD	High side to Pin 2 (grid) of 12AT7, (V7). Low side to chassis.	Not used	4.5MC (400∿ Mod.)	Any	Vert. amp. to Pin 2 of picture tube. Low side to chassis.	A9	Adjust for MINIMUM 400∿ indication on scope.

SOUND IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
10.	Direct	High side to an ungrounded tube shield floating over dummy converter tube, (V2). Low side to chassis.	21.7MC (Unmod.)	Any	DC probe thru 1 meg to Point (B). Common to chassis.	A10, A11, A12	Adjust for maximum deflection.
11.	"	"	"	"	DC probe to Point (C). Common to chassis.	A13	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

SOUND IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated signal with 60∿ modulation and 450KC sweep. Use 120∿ sawtooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
10.	Direct	High side to an ungrounded tube shield floating over dummy converter tube, (V2). Low side to chassis.	21.7MC (450KC SWP)	21.7MC	Any	Vert. amp. thru 22KΩ to Point (B). Low side to chassis.	A10, A11, A12	Adjust for maximum amplitude and symmetry as per figure 2.
11.	"	"	"	"	"	Vert. amp. to Point (C). Low side to chassis.	A13	Adjust A13 so 21.7MC occurs at center of cross over lines as per figure 3. SLIGHTLY retouch A12 for maximum amplitude and straightness of crossover lines.

OSCILLATOR ALIGNMENT

Remove the dummy converter tube and replace the original 6J6 in its socket.
The signal generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Complete oscillator alignment may not be necessary. If the oscillator seems to be off-frequency approximately the same amount for a majority of the channels, it may be possible to correct them in one step, using A14. It should be noted that this is an all-channel oscillator circuit adjustment and should not be adjusted for any individual channel. If adjustment of A14 will not bring all channels well within the range of the fine tuning control, it will be necessary to adjust the channel strip adjustment for each channel that is off-frequency. The channel strip adjustment are reached through a hole just to the right of the channel switch shaft. The correct adjustment screw is accessible through this hole as the channel switch is turned to each channel.
Set the fine tuning control to the mid-position of its range.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
11.	Two 120Ω carbon resistors	Across antenna terminals with 120Ω in each lead.	215.75MC (Unmod.)	13	DC probe to Point (C). Common to chassis.	A15	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.
			209.75MC	12		A16	
			203.75MC	11		A17	
			197.75MC	10		A18	
			191.75MC	9		A19	
			185.75MC	8		A20	
			179.75MC	7		A21	
			87.75MC	6		A22	
			81.75MC	5		A23	
			71.75MC	4		A24	
			65.75MC	3		A25	
			59.75MC	2		A26	

ALIGNMENT INSTRUCTIONS (CONT.)

RF AND MIXER ALIGNMENT

The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
12.	Two 120Ω carbon resistors	Across antenna terminals with 120Ω in each lead.	207MC (10MC SWP)	205.25MC 209.75MC	12	Vert. amp. thru 10KΩ to Point ◇. Low side to chassis.	A27, A28, A29	Adjust for response curve similar to figure 4 with markers above 90%.
13.	"	"	213MC (10MC SWP)	211.25MC 215.75MC	13	"		Check all channels for response similar to figure 4. If markers fall below 70% on any channel make slight adjustments of A27, A28 and A29 with channel switch set for that channel. Recheck all channels to see that they have not been seriously effected.
			201MC (10MC SWP)	199.25MC 203.75MC	11			
			195MC (10MC SWP)	193.25MC 197.75MC	10			
			189MC (10MC SWP)	187.25MC 191.75MC	9			
			183MC (10MC SWP)	181.25MC 185.75MC	8			
			177MC (10MC SWP)	175.25MC 179.75MC	7			
			85MC (10MC SWP)	83.25MC 87.75MC	6			
			79MC (10MC SWP)	77.25MC 81.75MC	5			
			69MC (10MC SWP)	67.25MC 71.75MC	4			
			63MC (10MC SWP)	61.25MC 65.75MC	3			
			57MC (10MC SWP)	55.25MC 59.75MC	2			

FIG. 1

FIG. 2

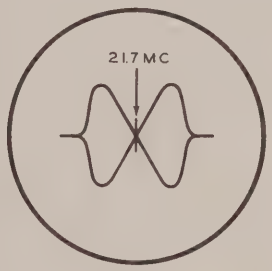


FIG. 3

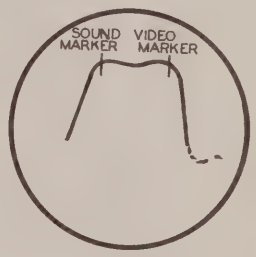


FIG. 4

VOLTAGE AND RESISTANCE MEASUREMENTS

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6BC5	-.7VDC	0V	6.3VAC	0V	105VDC	105VDC	0V		
V 2	6J6	105VDC	70VDC	6.3VAC	0V	-2VDC	-§4.4VDC	0V		
V 3	6AG5	-.3VDC	.4VDC	0V	6.3VAC	115VDC	115VDC	.4VDC		
V 4	6AG5	-.2VDC	.2VDC	6.3VAC	0V	117VDC	117VDC	.2VDC		
V 5	6AG5	0V	1VDC	6.3VAC	0V	112VDC	112VDC	1VDC		
V 6	6AL5	0V	0V	6.3VAC	0V	1VDC	0V	-.4VDC		
V 7	12AT7	95VDC	-.4VDC	0V	6.3VAC	6.3VAC	260VDC	0V	6.3VAC	0V
V 8	12AU7	250VDC	0V	12VDC	6.3VAC	6.3VAC	5.8VDC	0V	2VDC	0V
V 9	6AU6	117VDC	130VDC	0V	6.3VAC	-.2VDC	265VDC	130VDC		
V 10	6BA6	0V	0V	0V	6.3VAC	112VDC	112VDC	1.6VDC		
V 11	6AU6	-.5VDC	0V	6.3VAC	0V	112VDC	85VDC	0V		
V 12	6AL5	-.1VDC	-.5VDC	6.3VAC	1.4VAC	0V	0V	-.5VDC		
V 13	6AT6	-.5VDC	0V	0V	6.3VAC	-1.7VDC	-1.7VDC	60VDC		
V 14	6AQ5	0V	13.5VDC	6.3VAC	0V	225VDC	240VDC	0V		
V 15	6SN7GT	-20VDC	140VDC 270VDC	0V	.6VDC	105VDC	16VDC	0V	6.3VAC	
V 16	6S4	0V	15VDC 40VDC	0V	0V	6.3VAC	0V	0V	0V	580VDC
V 17	6AL5	0V	0V	6.3VAC	0V	5.7VDC	0V	-3.6VDC		
V 18	6SN7GT	.4VDC	330VDC	12VDC	-4.7VDC	137VDC	12VDC	0V	6.3VAC	
V 19	6BG6G	-3.8VDC	6.3VAC	10VDC	0V	-3.8VDC	0V	0V	270VDC	*
V 20	6W4GT	0V	340VDC	600VDC	230VDC	380VDC	230VDC	380VDC	380VDC	
V 21	1X2A	* DO NOT MEASURE								
V 22	5U4G	0V	390VDC	0V	380VAC	0V	380VAC	125VDC	390VDC	
V 23	16GP4	0V	.4VDC	PIN 10 380VDC	PIN 11 125VDC	PIN 12 6.3VAC				

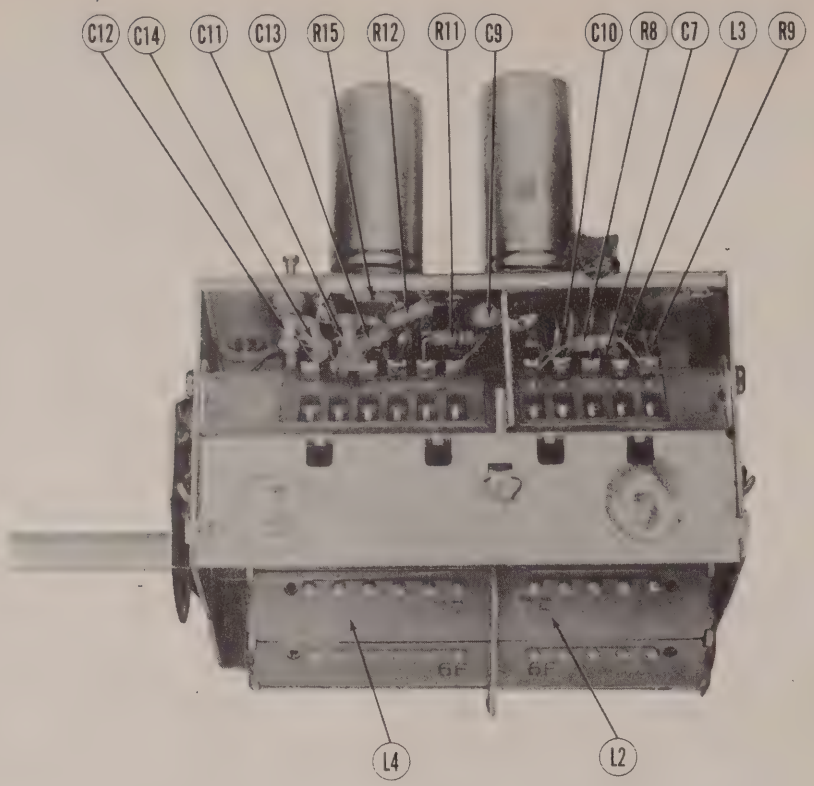
ALL MEASUREMENTS TAKEN WITH PICTURE TUBE REMOVED
* DO NOT MEASURE
§ TAKEN WITH VACUUM TUBE VOLTMETER

RESISTANCE READINGS

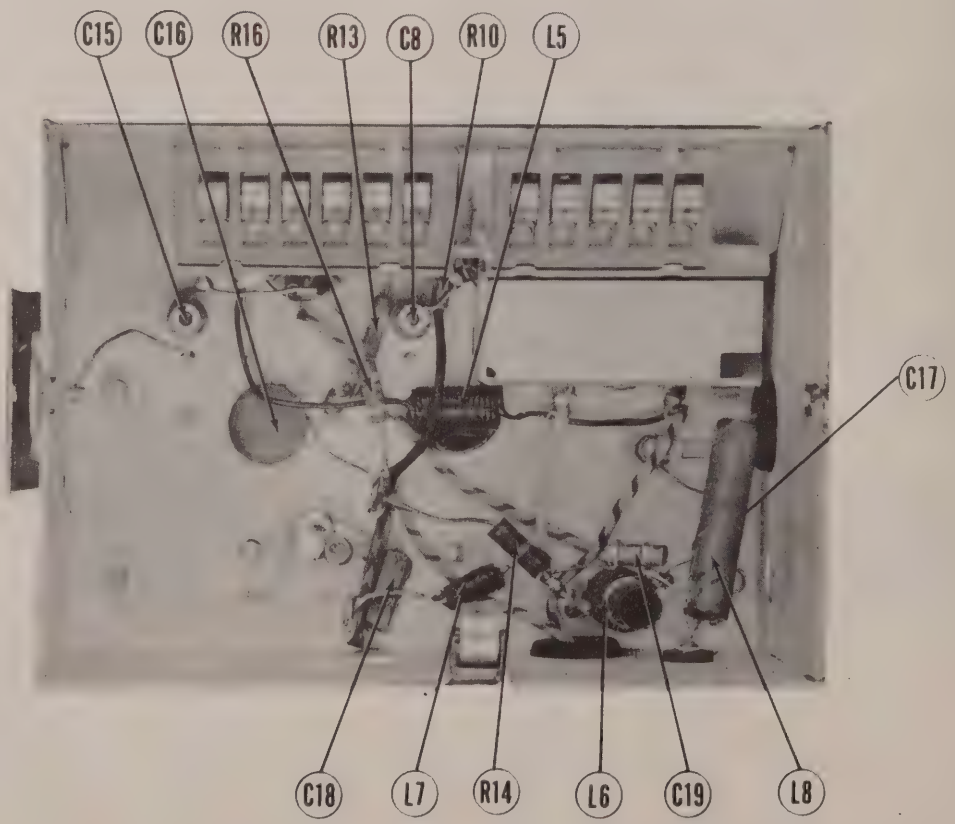
Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6BC5	2Meg	0Ω	.1Ω	0Ω	†4.8KΩ	†4.6KΩ	0Ω		
V 2	6J6	†7.2KΩ	†20KΩ	.1Ω	0Ω	230KΩ	10KΩ	0Ω		
V 3	6AG5	900KΩ	50Ω	0Ω	.1Ω	†3.9KΩ	†3.9KΩ	50Ω		
V 4	6AG5	900KΩ	33Ω	.1Ω	0Ω	†3.6KΩ	†3.6KΩ	33Ω		
V 5	6AG5	12KΩ	150Ω	.1Ω	0Ω	†4.7KΩ	†4.7KΩ	150Ω		
V 6	6AL5	.1Ω	0Ω	.1Ω	0Ω	1Meg	0Ω	4.7KΩ		
V 7	12AT7	†11KΩ	4.7KΩ	.2Ω	.1Ω	.1Ω	†15KΩ	1Meg	20KΩ	0Ω
V 8	12AU7	†5KΩ	1Meg	3KΩ	.1Ω	.1Ω	†82KΩ	0Ω	50KΩ	0Ω
V 9	6AU6	†40KΩ	†2.4KΩ	0Ω	.1Ω	1.4Meg	†900Ω	†2.4KΩ		
V 10	6BA6	0Ω	0Ω	0Ω	.1Ω	†3.3KΩ	†3.3KΩ	100Ω		
V 11	6AU6	470KΩ	0Ω	.1Ω	0Ω	†3.3KΩ	†26KΩ	0Ω		
V 12	6AL5	200KΩ	100KΩ	.1Ω	2Ω	0Ω	0Ω	100KΩ		
V 13	6AT6	10Meg	0Ω	0Ω	.1Ω	Inf.	Inf.	†580KΩ		
V 14	6AQ5	470KΩ	400Ω	.1Ω	0Ω	†2.4KΩ	†1.8KΩ	470KΩ		
V 15	6SN7GT	3Meg	#3.2 Meg 1.2Meg	0Ω	1Meg	†7.2KΩ	3.3KΩ	0Ω	.1Ω	
V 16	6S4	Inf.	5.8KΩ 820Ω	2Meg	0Ω	.1Ω	2Meg	Inf.	Inf.	#8KΩ
V 17	6AL5	27KΩ	27KΩ	.1Ω	0Ω	4.7Meg	Inf.	4.7Meg		
V 18	6SN7GT	5Meg	†5.2KΩ	1.2KΩ	150KΩ	†270KΩ	1.2KΩ	0Ω	.1Ω	
V 19	6BG6G	1Meg	.1Ω	150Ω	Inf.	1Meg	Inf.	0Ω	†10KΩ	TOP CAP #90Ω
V 20	6W4GT	Inf.	12KΩ	550KΩ	12KΩ	†650Ω	12KΩ	†50Ω	†50Ω	
V 21	1X2A	Inf.	Inf.	Inf.	Inf.	Inf.	Inf.	Inf.	Inf.	TOP CAP #540Ω
V 22	5U4G	Inf.	12KΩ	Inf.	22Ω	Inf.	21Ω	90KΩ	12KΩ	
V 23	16GP4	0Ω	1.3Meg	PIN 10 †50Ω	PIN 11 100KΩ	PIN 12 .1Ω				

ALL MEASUREMENTS TAKEN WITH PICTURE TUBE REMOVED
† MEASURED FROM PIN 2 OF V22
# MEASURED FROM PIN 3 OF V20

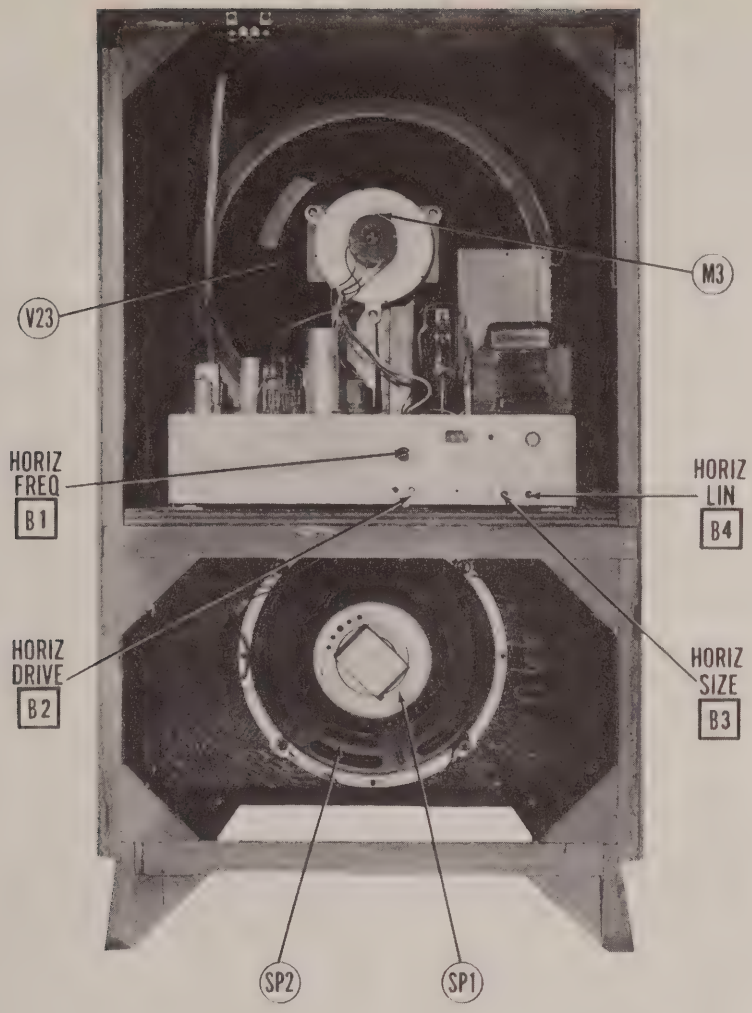
1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltage measured at 1,000 ohms.
2. Pin numbers are counted in a clockwise direction on bottom of socket.
3. Measured values are from socket pin to common negative unless otherwise stated.
4. Line voltage maintained at 117 volts for voltage readings.
5. Front panels controls set at minimum.
6. Where readings may vary according to the setting of the service controls, both minimum and maximum readings are given.



RF TUNER-RIGHT SIDE



RF TUNER-BOTTOM VIEW



CABINET-REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Turn the set on and tune in a TV station, preferably a test pattern.

Turn the horizontal hold control to the mid-position of its range.

Adjust the horizontal frequency slug (B1) until the picture synchronizes horizontally.

Adjust the horizontal drive trimmer, (B2), counter-clockwise as far as possible without crowding or vertical lines appearing in the picture.

Adjust the horizontal size slug, (B3), until the picture fills the mask horizontally.

Adjust the horizontal linearity slug, (B4), until the picture is symmetrical from left to right. Slight readjustment of B2 may be necessary to obtain optimum linearity.

DISASSEMBLY INSTRUCTIONS

1. Remove four push-on type control knobs.
2. Remove six wood screws from rear cover. Remove rear cover.
3. Disconnect built-in antenna.
4. Remove antenna terminal strip.
5. Disconnect speaker.
6. Remove four hex head bolts from chassis. Remove chassis.
7. Remove four hex nuts from speaker. Remove speaker.

NOTE: FOR PICTURE TUBE REMOVAL, IT IS NECESSARY TO REMOVE THE CHASSIS AS OUTLINED ABOVE.

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: CORONADO PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	NOTES
V1	RF Amplifier	6BC5	6BC5	7BD	6AG5 or 6CB6 Alternates
V2	Converter	6J6	6J6	7BF	
V3	1st Video IF Amp.	6AG5	6AG5	7BD	
V4	2nd Video IF Amp.	6AG5	6AG5	7BD	
V5	3rd Video IF Amp.	6AG5	6AG5	7BD	
V6	Video Detector - DC Restorer	6AL5	6AL5	6BT	
V7	1st Video Amp. - Sync. Amplifier	12AT7	12AT7	9A	
V8	2nd Video Amp. - Sync. Separator	12AU7	12AU7	9A	
V9	AGC Keying	6AU6	6AU6	7BK	
V10	1st Sound IF Amp.	6BA6	6BA6	7BK	
V11	Sound Limiter	6AU6	6AU6	7BK	
V12	Discriminator	6AL5	6AL5	6BT	
V13A	AF Amplifier	6AT6	6AT6	7BT	
B	AF Amplifier	6AV6	6AV6	7BT	
V14	Audio Output	6AQ5	6AQ5	7BZ	
V15	Sync. Phase Inv. - Vert. Oscillator	6SN7GT	6SN7GT	8BD	
V16A	Vertical Output	6S4	6S4	9AC	
B	Vertical Output	6AQ5	6AQ5	7BZ	
V17	Horiz. Phase Det.	6AL5	6AL5	6BT	
V18	Horiz. Mult.	6SN7GTA	6SN7GTA	8BD	
V19	Horiz. Output	6BG6G	6BG6G	6AM	
V20	Damper	5W4GT	5W4GT	4CG	
V21A	H.V. Rectifier	1X2A	1X2A	7CB	
B	H.V. Rectifier	1X2	1X2	7CB	
V22	L.V. Rectifier	5U4G	5T	4CG	
V23	Picture Tube	16GP4	16GP4	12D	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: CORONADO PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C1A	80	450	45X376	AF166J		UP8445		TVL-2777	▲ Filter
B	30	450							▲ Filter
C2A	80	450	45X376	AF166J		UP8445		TVL-2777	▲ Filter
B	30	450							▲ Filter
V3A	10	450	45X375	AF22J8B		UPT1145V4		TVL-3749	■ Vert. Output Dec. ▲ Output Decoupling
B	10	450							▲ Output Decoupling
C	50	50							▲ Output Cathode
C4A	30	450	45X380	AFH6J		UP2145V5		TVL-3751	■ Filter
B	40	50		PRS50/50					▲ Output Cathode
C5	20	400	45X382	PRS450/20		BR2045A		TVA-1709	Vert. Output Dec.
C6	8	25	45X378	PRS150/4		BBR5-25		TVA-1203	Sync. Amp. Cathode
C7	3-9								Variable Trimmer
C8	.5-3				829-3				Variable Trimmer
C9	120			SI120	D6-121		GP2K-121	19C39	RF Amp. Dec.
C10	1000			BPD-001	DD-102		811-001	19C1	RF Amp. Fil.
C11	100			SI100N750	TCN-100		N750L-101	39C16	RF Coupling
C12	.5-3				829-3				Variable Trimmer
C13	20			SI20NPO	TCZ-20		NPOK-200		Osc. Grid Cap
C14	10			SI10N750	TCN-10		N750K-100	19C4	Fixed Trimmer
C15	.5-3				829-3				Variable Trimmer
C16A	1000		BPD-2X001	DD-2-102		813-001		39C7	RF Bypass
B	1000								Conv. Filament
C17	10			SI10NPO	TCZ-10		NPOK-100	19C3	Fixed Trimmer
C18	72	500							Fixed Trimmer
C19	300			SI300	D6-301		GP2K-301	19C31	IF Coupling
C20	1000		47X519	SI1000	D6-102	1W5D1	GP2L-102	19C1	AGC Filter
C21	1000		47X519	SI1000	D6-102	1W5D1	GP2L-102	19C1	RF Bypass
C22	1000		47X519	SI1000	D6-102	1W5D1	GP2L-102	19C1	1st V. IF Dec.
C23	1000		47X519	SI1000	D6-102	1W5D1	GP2L-102	19C1	1st V. IF Fil.
C24	270	500	47X445	1468-00025	D6-271	5W5T25	GP2K-271	1FM-325	IF Coupling
C25	1000		47X519	SI1000	D6-102	1W5D1	GP2L-102	19C1	AGC Filter
C26	1000		47X519	SI1000	D6-102	1W5D1	GP2L-102	19C1	RF Bypass
C27	1000		47X519	SI1000	D6-102	1W5D1	GP2L-102	19C1	2nd V. IF Dec.
C28	1000		47X519	SI1000	D6-102	1W5D1	GP2L-102	19C1	2nd V. IF Fil.
C29	47				TCZ-47		NPO-330-470	29C14	Fixed Trimmer
C30	51				TCZ-51		NPO-330-510		Fixed Trimmer
C31	270	500	47X445	1468-00025	D6-271	5W5T25	GP2K-271	1FM-325	IF Coupling
C32	47	500		1469-00005	TCZ-47	5R5Q5	NPO-330-470	29C14	Fixed Trimmer
C33	1000		47X519	SI1000	D6-102	1W5D1	GP2L-001	19C1	RF Bypass
C34	1000		47X519	SI1000	D6-102	1W5D1	GP2L-001	19C1	3rd V. IF Dec.
C35	1000		47X519	SI1000	D6-102	1W5D1	GP2L-102	19C1	3rd V. IF Fil.
C36	1000		47X519	SI1000	D6-102	1W5D1	GP2L-102	19C1	3rd V. IF Cathode
C37	270	500	47X445	1468-00025	D6-271	5W5T25	GP2K-271	1FM-325	IF Coupling
C38	1000		47X519	SI1000	D6-102	1W5D1	GP2L-102	19C1	V. Det. Fil.
C39	5		47X562	SI5NPO	TCZ-4.7	5W5V5	NPOK-5	MS-55	V. Diode Filter
C40	43		47X563		TCZ-43		NPOL-430		Peaking
C41	.05	400	D67503		P488-05	DF-503	PTE485	4TM-S5	Video Coupling
C42	.1	600	F65104		P688-1	DF-104	PTE6P1	6TM-P1	Video Coupling
C43	.05	400	D67503		P488-05	DF-503	PTE485	4TM-S5	Video Coupling
C44	.1	200	B65104		P288-1	DF-104	PTE4P1	2TM-P1	Picture Tube Cath.
C45	1000	1000	47X589		1464-HV-001				Horiz. Sweep Coupling
C46	.5	200	B65504		P288-5		GT2P5	2TM-P5	AGC Filter
C47	.1	200	B65104		P288-1	DF-104	PTE4P1	2TM-P1	AGC Filter
C48	.5	200	B65504		P288-5		GT2P5	2TM-P5	AGC Filter
C49	1000		47X519		SI1000	D6-102	1W5D1	GP2L-102	19C1 AGC Filter
C50	1000		47X519		SI1000	D6-102	1W5D1	GP2L-102	19C1 1st S. IF Dec.
C51	1000		47X519		SI1000	D6-102	1W5D1	GP2L-102	19C1 1st S. IF Cathode
C52	5000		47X507		BPD-005	DD-502	1D5D5	811-005	29C1 Limiter Grid Filter
C53	1000		47X519		SI1000	D6-102	1W5D1	GP2L-102	19C1 Limiter Plate Dec.
C54	1000		47X519		SI1000	D6-102	1W5D1	GP2L-102	19C1 Limiter Screen
C55	270	500	47X445		1468-00025	D6-271	5W5T25	GP2K-271	1FM-325 RF Bypass
C56	5000		47X507		BPD-005	DD-502	1D5D5	811-005	29C1 Discr. Filament
C57	.05	200	B65503		P288-05	DF-503	PTE4S5		2TM-S5 Audio Coupling
C58	.005	200	B65502		P688-005	D6-502	PTE6D5	811-005	6TM-D5 Tone Comp.
C59	.01	200	B65103		P488-01	D6-103	PTE4S1	821-01	4TM-S1 Audio Coupling
C60	.05	400	D67503		P488-05	DF-503	PTE485		4TM-S5 AF Amp. Plate Dec.

CAPACITORS (CONT.)

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: CORONADO PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C61A	250		*76X5	SI250	*	5W5T25	GP2K-251	19C13	AF Amp. Plate Dec.
B	10000			BPD-01	PC-80	PTE4S1	821-01	39C1	Audio Coupling
C	250			SI250		5W5T25	GP2K-251	19C13	Output Grid
C62	.005	600	F65503	P688-005	D6-502	PTE6D5	811-005	6TM-D5	Output Plate
C63	.05	400	D67503	P488-05	DF-503	PTE485		4TM-S5	Sync. Coupling
C64	.1	400	D65104	P488-1	DF-104	PTE4P1		4TM-P1	Sync. Coupling
C65	.05	400	D67503	P488-05	DF-503	PTE485		4TM-S5	Sync. Coupling
C66A	2000		† 78X7	P688-002	† "	PTE6D2	GP2-333-202	6TM-D2	Integrator Net
B	5000			P688-005	PC-100	PTE6D5	GP2-333-502	6TM-D5	Integrator Net
C	5000			P688-005		PTE6D5	GP2-333-502	6TM-D5	Integrator Net
C67	4700	500	47X543	1467-005	D6-472	1D5D5	GP2-333-472	1FM-25	Vert. Osc. Grid
C68	.05	600	F65503	P688-05	DF-503	PTE685		6TM-S5	Vert. Discharge
C69	15	400	D65354	P488-25		GT4P25		4TM-P25	Vert. Sweep Coupling
C70	1000		47X519	SI1000	D6-102	1W5D1	GP2L-102	19C1	Horiz. Sync. Coupling
C71	1000		47X519	SI1000	D6-102	1W5D1	GP2L-102	19C1	Horiz. Sync. Coupling
C72	.05	600	F67503	P688-05	DF-503	PTE685		6TM-S5	Horiz. Feedback
C73	.01	200	B65103	P488-01	D6-103	PTE4S1	821-01	4TM-S1	AFC Filter
C74	.005	600	B65502	P688-005	D6-502	PTE6D5	811-005	6TM-D5	AFC Filter
C75	.05	200	B65503	P288-05	DF-503	PTE4S5		2TM-S5	AFC Filter
C76	330	500	47X570	1468-00035	D6-331	5W5T3	GP2K-331	1FM-335	Horiz. MV Feedback
C77	3900	500	47X572	1464-004		1DR5D4		MS-24	Fixed Trimmer
C78	270	500	47X445	SI270	D6-271		GP2K-271	19C31	Horiz. Discharge
C79	390	500	47X571	1468-0004	D6-391	5W5T4	GP2K-391	1FM-34	Horiz. Sweep Coupling
C80	.05	600	F67503	P688-05	DF-503	PTE685		6TM-S5	Horiz. Output Screen
C81	.25	200	B65254	P488-25		GT2P25		2TM-P25	Horiz. Output Cathode
C82	.03	400	D65303	P688-03		PTE6S3		6TM-S3	Damper Filter
C83	.1	400	D65104	P488-1		PTE4P1		4TM-P1	Damper Filter
C84	.25	200	B65254	P488-25		GT2P25		2TM-P25	Horiz. Sweep Coupling
C85	.1	200	D65104	P288-1	DF-104	PTE4P1		2TM-P1	Fixed Trimmer
C86	500	2000	47X560	HV20C	TV3-502				H.V. Filter
C87	.01	400	46X410	P488-01	D6-103	PTE4S1	821-01	4TM-S1	Line Filter
C88	.01	400	46X410	P488-01	D6-103	PTE4S1	821-01	4TM-S1	Line Filter
C89	1000		47X519	SI1000	D6-102	1W5D1	GP2L-102	19C1	Horiz. Output Screen † Fixed Trimmer
C90	360		47X568						

* Items C61A, C61B, C61C, R58A and R58B are combined into one unit.
† Items C66A, C66B, C66C, R73A, †73B and R73C are combined into one unit.
† Not used in all models.

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: CORONADO PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	INSTALLATION NOTES
R1A	3000Ω	½	78X4	Concentrikit			
B	1Meg	½		Bl7-114 ♯ ♯	RTV-218	SBBT-503-S	Contrast Control - Front
				Bl3-137X ♯			Volume Control And SW - Tapped ⑥ 200KΩ - Rear
C	Shaft End			E-202 ♯			Attach Per Instructions in "Concentrikit"
R2A	50KΩ	½	40X292	Q11-123	AG-44-S	B-31	Horizontal Hold Control
B	Shaft		Not req.	Not req.	KSS-3	Not req.	Attach to R2A Per Instructions
R3A	500KΩ	½	40X290	Q11-132	AG-58-S	B-59	Brightness Control
B	Shaft		Not req.	Not req.	KSS-3	Not req.	Attach to R3A Per Instructions
R4A	5000Ω	½	40X294	Q11-114	AG-19-S		Vertical Linearity Control
B	Shaft		Not req.	FQ †	RS-2		Attach to R4A Per Instructions
C	Bushing		Not req.	S-3 §	59-186		Attach to R4A Per Instructions
R5A	2.5Meg	½	40X293	Q11-239	AG-84-S	B-83 †	Height Control
B	Shaft		Not req.	RQ	FKS-1/4	Not req.	Attach to R5A Per Instructions
R6A	1.5Meg	½	40X291	Q11-138	AG-83-S	B-75	Vertical Hold Control
B	Shaft		Not req.	Not req.	KSS-3	Not req.	Attach to R6A Per Instructions
R7A	4000Ω	2	40X300		43-4000		Focus Control - Wire Wound
B	Bushing		Not req.		59-186		Attach to R7A Per Instructions

† Fashion shaft to duplicate original.
§ Cut bushing to correct length.
♯ Shunt the terminals which are used on this replacement with an 8200Ω resistor.
♯ Additional parts to be used with "Concentrikit".

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: CORONADO PART No.	IRC PART No.	IDENTIFICATION CODES ALL RESISTORS ± 10% UNLESS OTHERWISE SPECIFIED
R8	3900Ω	½		BTS-3900	Antenna Coil Shunt
R9	47KΩ	20% 1		BTS-47K	AGC Network
R10	2200Ω	20% ½		BTS-2200	RF Amp. Decoupling
R11	10KΩ	½		BTS-10K	RF Coil Shunt
R12	4700Ω	20% ½		BTS-4700	Mixer Grid
R13	220KΩ	30% ½		BTS-220K	Mixer Grid
R14	15KΩ	½			Mixer Plate
R15	10KΩ	½		BTS-10K	Osc. Grid
R16	4700Ω	½		BTS-4700	Osc. Plate
R17	750Ω	20% 1		BTA-820	AGC Network - See Note 2
R18	10KΩ	½	B84103		1st. Video IF Amp. Grid
R19	47Ω	5% ½	B83470		1st. Video IF Amp. Cathode
R20	1000Ω	5% ½	B84102	BTS-1000-5%	1st. Video IF Amp. Decoupling
R21	150Ω	½	B84151	BTS-150	1st. Video IF Amp. Decoupling
R22	8200Ω	5% ½	B83822		2nd. Video IF Amp. Grid
R23	33Ω	5% ½	B83330		2nd. Video IF Amp. Cathode
R24	1000Ω	20% ½	B84102	BTS-1000	2nd. Video IF Amp. Decoupling
R25	330Ω	½	B84331	BTS-330	Decoupling - See Note 14
R26	12KΩ	5% ½	B83123		3rd. Video IF Amp. Grid
R27	150Ω	½	B84151	BTS-150	3rd. Video IF Amp. Cathode
R28	2200Ω	½	B84222	BTS-2200	3rd. Video IF Amp. Decoupling
R29	22KΩ	½	B84223	BTS-22K	Plate Choke Shunt
R30	4700Ω	½	B84472	BTS-4700	Video Det. Diode Load
R31	33KΩ	½	B84333	BTS-33K	AGC Keying Grid
R32	2700Ω	5% 1	C83272	BTA-2700-5%	Voltage Divider
R33	33KΩ	½	B84333	BTS-33K	AGC Network - See Note 3
R34	470KΩ	½	B84474	BTS-470K	AGC Network
R35	820KΩ	½	B84824	BTS-820K	AGC Network
R36	470KΩ	20% ½	B85474	BTS-470K	AGC Network
R37	750Ω	½		BTS-820	AGC Network - See Note 2
R38	6200Ω	1		BTA-5600	1st. Video Amp. Plate - See Note 4
R39	1Meg	½	B84105	BTS-1Meg	2nd. Video Amp. Grid
R40	100Ω	½	B84101	BTS-100	2nd. Video Amp. Cathode
R41	3900Ω	5% 1	C83392	BTA-3900-5%	2nd. Video Amp. Plate
R42	10KΩ	½	B84103	BTS-10K	Isolation

RESISTORS (CONT.)

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: CORONADO PART No.	IRC PART No.	IDENTIFICATION CODES
R43	1Meg	½	B84105	BTS-1Meg	DC Restorer Diode Load
R44	100KΩ	20% ½	B83334	BTS-100K	Voltage Divider
R45	100KΩ	½	B84104	BTS-100K	Picture Tube Grid
R46	100KΩ	20% ½	B85104	BTS-100K	Picture Tube Cathode
R47	100Ω	1	C84101	BW-1-100	Sound IF Amp. Cathode - Wire Wound-See Note 5
R48	1000Ω	½	B84102	BTS-1000	Sound IF Amp. Decoupling
R49	470KΩ	½	B84474	BTS-470K	Limiter Grid
R50	22KΩ	½	B84223	BTS-22K	Limiter Screen
R51	1000Ω	½	B84102	BTS-1000	Limiter Plate Decoupling
R52	100KΩ	½	B84104	BTS-100K	Disc. Diode Load
R53	5.6Ω	1		BW-1-5.6	Disc. Diode Filament - Wire Wound - See Note 6
R54	100KΩ	½	B84104	BTS-100K	De-emphasis
R55	68KΩ	½	B84683	BTS-68K	Tone Compensation
R56	10Meg	½	B85106	BTS-10Meg	AF Amp. Grid - See Note 13
R57	47KΩ	½	B84473	BTS-47K	AF Amp. Plate Decoupling
R58A	500KΩ	½	76X5 *	BTS-470K	AF Amp. Plate
B	500KΩ	½		BTS-470K	Output Grid
R59	390Ω	2	B84391	BW-2-390	Output Cathode - Wire Wound
R60	1000 Ω	2	D84102	BTS-1000	Output Decoupling
R61	10KΩ	½	B84103	BTS-10K	Isolation
R62	1Meg	½	B84105	BTS-1Meg	Sync. Amp. Grid
R63	22KΩ	20% ½	B84223	BTS-22K	Sync. Amp. Cathode
R64	12KΩ	5% ½	B83123	BTS-12K-5%	Sync. Amp. Plate
R65	2200Ω	½	B84222	BTS-2200	Isolation
R66	47KΩ	5% ½	B83473	BTS-47K-5%	Sync. Sep. Cathode
R67	820KΩ	½	B84824	BTS-820K	Sync. Sep. Plate
R68	68KΩ	½	B84683	BTS-68K	Voltage Divider
R69	3300Ω	5% ½	B83332	BTS-3300-5%	Sync. Phase Inv. Cathode
R70	1600Ω	20% ½		BTS-1500	Sync. Phase Inv. Plate - See Note2
R71	3300Ω	5% ½	B83332	BTS-3300-5%	Sync. Phase Inv. Plate
R72	1Meg	½	B84105	BTS-1Meg	Voltage Divider
R73A	22KΩ	½	76X7 †	BTS-22K	Integrator
B	8200Ω	½		BTS-8200	Integrator
C	8200Ω	½		BTS-8200	Integrator
R74	1Meg	½	B84105	BTS-1Meg	Vert. Osc. Grid
R75	100KΩ	½	B84104	BTS-100K	Vert. Osc. Grid
R76	1.5Meg	20% ½	B85155	BTS-1.5Meg	Vert. Osc. Plate - See Note 7
R77	4700Ω	½	B84472	BTS-4700	Vert. Peaking
R78	1.8Meg	½	B84185	BTS-1.8Meg	Vert. Output Grid
R79	820Ω	½	B84821	BTS-820	Vert. Output Cathode
R80	470KΩ	20% ½	B85474	BTS-470K	Bleeder
R81	470KΩ	½	B84474	BTS-470K	Bleeder
R82	100KΩ	½	B84104	BTS-100K	Horiz. Phase Det. Diode Load
R83	100KΩ	½	B84104	BTS-100K	Horiz. Phase Det. Diode Load
R84	4.7Meg	½	B84475	BTS-4.7Meg	Horiz. Phase Det. Diode Load
R85	27KΩ	½	B84273	BTS-27K	Horiz. Phase Det. Diode Load
R86	470KΩ	20% ½	B85474	BTS-470K	Horiz. AFC Filter
R87	1200Ω	½	B84122	BTS-1200	Horiz. MV Cathode - See Note 8
R88	4700Ω	½	B84472	BTS-4700	Horiz. MV Plate
R89	100KΩ	½	B84104	BTS-100K	Horiz. MV Grid
R90	270KΩ	1	C84274	BTA-270K	Horiz. MV Plate
R91	100Ω	20% 1	C85101		AC-Static Suppressor - See Note 9
R92	1Meg	½	B84105	BTS-1Meg	Horiz. Output Grid
R93	150Ω	2	D84151	BW-2-150	Horiz. Output Cathode
R94	10KΩ	5	43X247	1 3/4A-10K	Horiz. Output Screen - Wire Wound
R95	4300Ω	20% ½			Horiz. Linearity Coil Shunt - See Note 10
R96	22KΩ	5% ½	D83223	BTS-22K-5%	Horiz. Feedback
R97	3.3Ω	½		BW-½-3.3	HV Rectifier Filament - Wire Wound - See Note 11
R98	1Meg	20% 1	C85105		HV Filter
R99	6800Ω	2	D85682	BTS-6800	Decoupling
R100	10KΩ	5	43X247	1 3/4A-10K	Voltage Divider - Wire Wound
R101	1500Ω	10	43X246	1 3/4A-1500	Filter - Wire Wound
R102	500Ω	10	43X245	1 3/4A-500	Filter - Wire Wound
R103	1000Ω	2	D84102	BTS-1000	Focus Coil Shunt - See Note 1
R104	500Ω	5	43X257	1 3/4A-500	Focus Coil Shunt - Wire Wound - See Note 12

* Items R58A, R58B, C61A, C61B, and C61C are combined into one unit.
† Items R73A, R73B, R73C, C66A, C66B, and C66C are combined into one unit.

Note 1 Not used in all models.
Note 2 Some models use 1000Ω Resistor in this application.
Note 3 Some models use 22KΩ Resistor in this application.
Note 4 Some models use 5600Ω Resistor in this application.
Note 5 Some models use 82Ω Resistor in this application.
Note 6 Some models use 5.1Ω Resistor in this application.
Note 7 Some models use 470KΩ Resistor in this application.
Note 8 Some models use 1500Ω Resistor in this application.
Note 9 Some models use 150Ω Resistor in this application.
Note 10 Some models use 4700Ω Resistor in this application.
Note 11 Some models use 1Ω Resistor in this application.
Note 12 Some models use 1000Ω 2 watt Resistor in this application.
Note 13 Some models use Series Resistors in this application to obtain desired value.
Note 14 Some models use Parallel Resistors in this application to obtain desired value

SPEAKER

ITEM No.	RATINGS: FIELD RES.	RATINGS: V. C. IMP.	REPLACEMENT DATA: CORONADO PART No.	REPLACEMENT DATA: JENSEN PART No.	REPLACEMENT DATA: QUAM PART No.	NOTES
SP1	PM	3.2Ω	12A490	12J12	12A4A	
	CONE DIA.	V. C. DIA.				
SP2	11 7/8"	1"				

TRANSFORMER (POWER)

ITEM No.	RATING: PRI.	RATING: SEC. 1	RATING: SEC. 2	RATING: SEC. 3	REPLACEMENT DATA: CORONADO PART No.	REPLACEMENT DATA: STANCOR PART No.	REPLACEMENT DATA: MERIT PART No.	REPLACEMENT DATA: CHICAGO PART No.
T1	117VAC ⑤ 1.9A	760VCT ⑤ .240ADC	5VAC ⑤ 3A	6.3VAC ⑤ 1.2A SEC. 4 6.3VAC ⑤ 7.8A	53X313 53X308 ①	P8159 ②		TP-392

① Used in some models.
② Redrill mounting holes.

PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (SWEEP CIRCUITS)

ITEM No.	RATING DC RESISTANCE PRI.	RATING DC RESISTANCE SEC.	REPLACEMENT DATA CORONADO PART No.	REPLACEMENT DATA STANCOR PART No.	REPLACEMENT DATA MERIT PART No.	REPLACEMENT DATA CHICAGO PART No.	NOTES
T2	170Ω	900Ω	54X5	A-8122 ③	A-3000		Vert. Block Osc. Trans.
T3	485Ω Tap 61Ω	4.5Ω SEC. 2 9Ω Taps .4Ω and 6.5Ω SEC. 3 0Ω	53X315		HV0-6 ④		Horizontal Output Trans.
T4	1060Ω Tap 12.5Ω		51X149	A-8123 ③	A-3036 ③	TS0-1 ③	Vert. Output Trans.
T5A	13Ω		9A2149	DY-7	MDF-70		Horizontal Deflection Coil
B	48Ω						Vertical Deflection Coil
T6	650Ω		9A2147		MF-2		Focus Coil

③ Drill one new mounting hole.
④ Use MWC-1 For AGC Winding.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING IMPEDANCE PRI.	RATING IMPEDANCE SEC.	RATING DC RES. PRI.	RATING DC RES. SEC.	REPLACEMENT DATA CORONADO PART No.	REPLACEMENT DATA STANCOR PART No.	REPLACEMENT DATA MERIT PART No.	REPLACEMENT DATA CHICAGO PART No.	INSTALLATION NOTES
T7	5.5KΩ	3.2Ω	490Ω	.9Ω	51X150	A-3877	A-3019 ③	R0-9 ③	③ Drill one new mounting hole.

FILTER CHOKE

ITEM No.	RATINGS TOTAL DIRECT CURRENT	RATINGS D. C. RESISTANCE	RATINGS INDUCTANCE (0 CURRENT 1000 ~)	REPLACEMENT DATA CORONADO PART No.	REPLACEMENT DATA STANCOR PART No.	REPLACEMENT DATA MERIT PART No.	REPLACEMENT DATA CHICAGO PART No.	INSTALLATION NOTES
L1	.240A	52Ω	2 Henries	52X88	C-2326	C-2974 ③	TR-3300 ③	③ Drill one new mounting hole.

COILS (RF-IF)

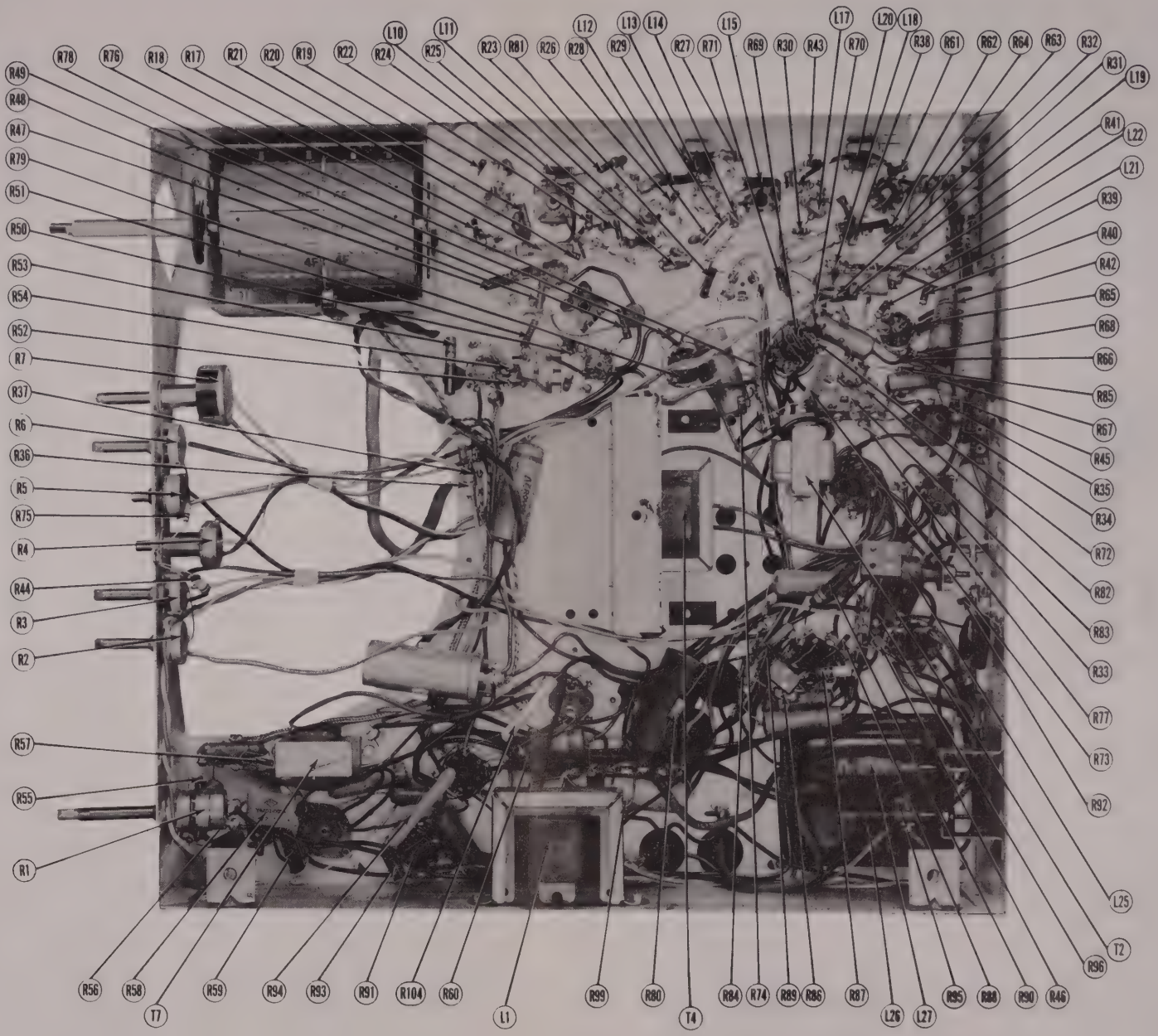
ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA CORONADO PART No.		NOTES
L2	Ant. Coils	0Ω	0Ω			
L3	Fil. Choke					
L4	RF, Mixer Grid, Osc. Coils	0Ω				
L5	Fil. Choke	0Ω				
L6	1st Video IF					
L7	RF Choke					
L8	IF Coupling Choke	1Ω	1Ω			
L9	2nd Video IF	.2Ω	0Ω	9A2076		
L10	Fil. Choke	0Ω		9A2033		
L11	3rd Video IF	.2Ω	0Ω	9A2055		
L12	Fil. Choke	0Ω		9A2033		
L13	Adj. Video Trap	.2Ω	.1Ω	9A2073		
L14	RF Choke	3Ω		9A1979		
L15	Fil. Choke	0Ω		9A2033		
L16	4th Video IF	.2Ω	.2Ω	9A2071		
L17	Peaking	1.2Meg		9A2090		390 Microhenries (Green Dot)
L18	Peaking	5Ω		9A2086		95 Microhenries (Wound on 4.7Ω resistor - yellow dot)
L19	Peaking	8Ω		9A2088		196 Microhenries (Blue Dot)
L20	4.5MC Trap	.4Ω		9A2074		
L21	Peaking	10Ω		9A2089		183 Microhenries (Wound on 2.2KΩ resistor - Red Dot)
L22	Peaking	6Ω		9A2087		125 Microhenries (White Dot)
L23	1st Sound IF	.2Ω	.2Ω	9A1986		
L24	Discr. Trans.	.1Ω	.1Ω	9A2049		
L25	Horiz. Osc.	53Ω		9A2096		
L26	Horiz. Lin.	25Ω		9A2111		
L27	Horiz. Size	.3Ω		9A1976		

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA CORONADO PART No. FUSE	REPLACEMENT DATA CORONADO PART No. HOLDER	REPLACEMENT DATA LITTELFUSE PART No. FUSE	REPLACEMENT DATA LITTELFUSE PART No. HOLDER	REMARKS
M1	4AG	.250A Slo-Blo	16X147		313.250	357001	

MISCELLANEOUS

ITEM No.	PART NAME	CORONADO PART No.	NOTES
M2	RF Tuner	25A1071	
M3	Ion Trap	2A401	
B2	Trimmer	17A261	40-370MMF. (Horizontal Drive)
	Knob	10A741	Channel Selector
	Knob	10A742	Fine Tuning
	Knob	10A753	On/Off Volume
	Knob	10A752	Contrast



CHASSIS BOTTOM VIEW-RESISTOR AND INDUCTOR IDENTIFICATION

PHOTOFACT* Folder

*TRADE MARK

CROSLEY MODELS S11-442M1U, S11-444MU, S11-453MU, S11-459MU, S11-472B1U, S11-474BU, S17CDC1, S17CDC2, S17CDC3, S17CDC4, S17COC1, S17COC2, S17COC3

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MODEL S11-459MU

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HOWARD W. SAMS & CO., INC. • Indianapolis, Indiana

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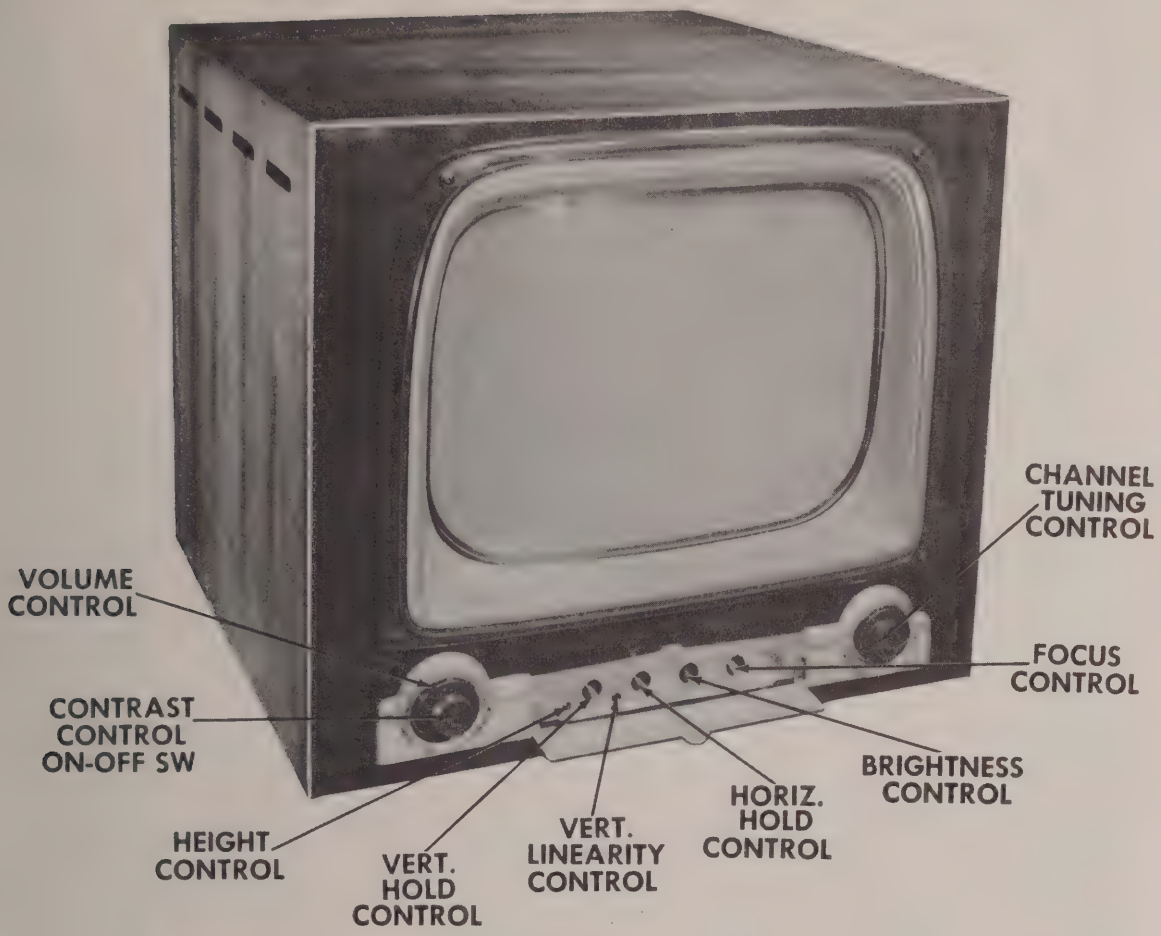

CROSLEY MODELS S11-442M1U, S11-444MU, S11-453MU, S11-459MU, S11-472B1U, S11-474BU, S17CDC1, S17CDC2, S17CDC3, S17CDC4, S17COC1, S17COC2, S17COC3

CROSLEY MODEL S11-459MU

TRADE NAME	Crosley, Models S11-442M1U, S11-444MU, S11-453MU (Ch. 331-4), S11-459MU (Ch. 321-4), S11-472B1U, S11-474BU, S17CDC1, S17CDC2, S17CDC3, S17CDC4, S17COC1, S17COC2, S17COC3 (Ch. 331-4)
MANUFACTURER	Crosley Corp., 1329 Arlington Street, Cincinnati, Ohio
TYPE SET	Television Receiver
TUBES	Twenty four

POWER SUPPLY 110-120 Volts AC-60 Cycle RATING 2.3 Amp. at 117 Volts AC
TUNING RANGE—CHANNELS 2 thru 13

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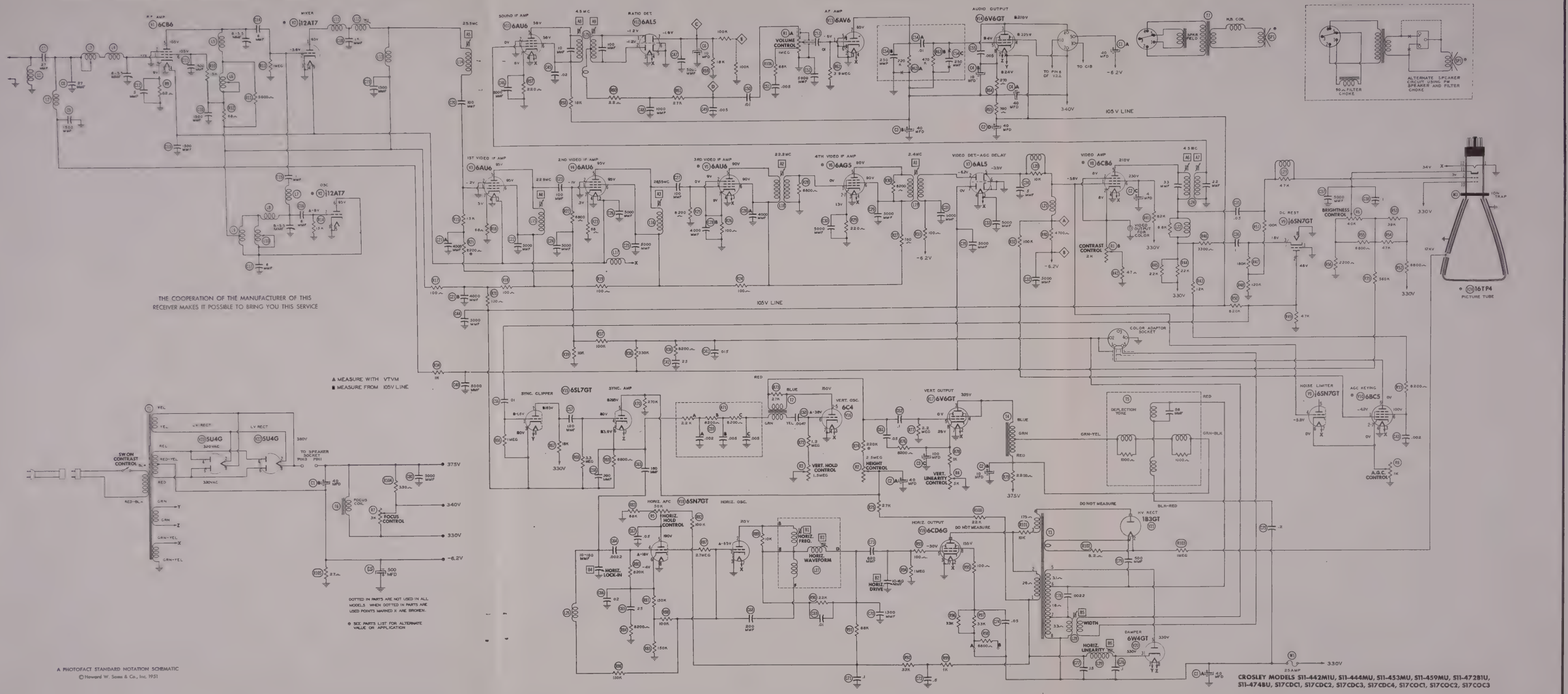
THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE
A MEASURE WITH VTVM
■ MEASURE FROM 105V LINE
DOTTED IN PARTS ARE NOT USED IN ALL MODELS. WHEN DOTTED IN PARTS ARE USED POINTS MARKED X ARE BROKEN.
● SEE PARTS LIST FOR ALTERNATE VALUE ON APPLICATION
A PHOTOFACT STANDARD NOTATION SCHEMATIC
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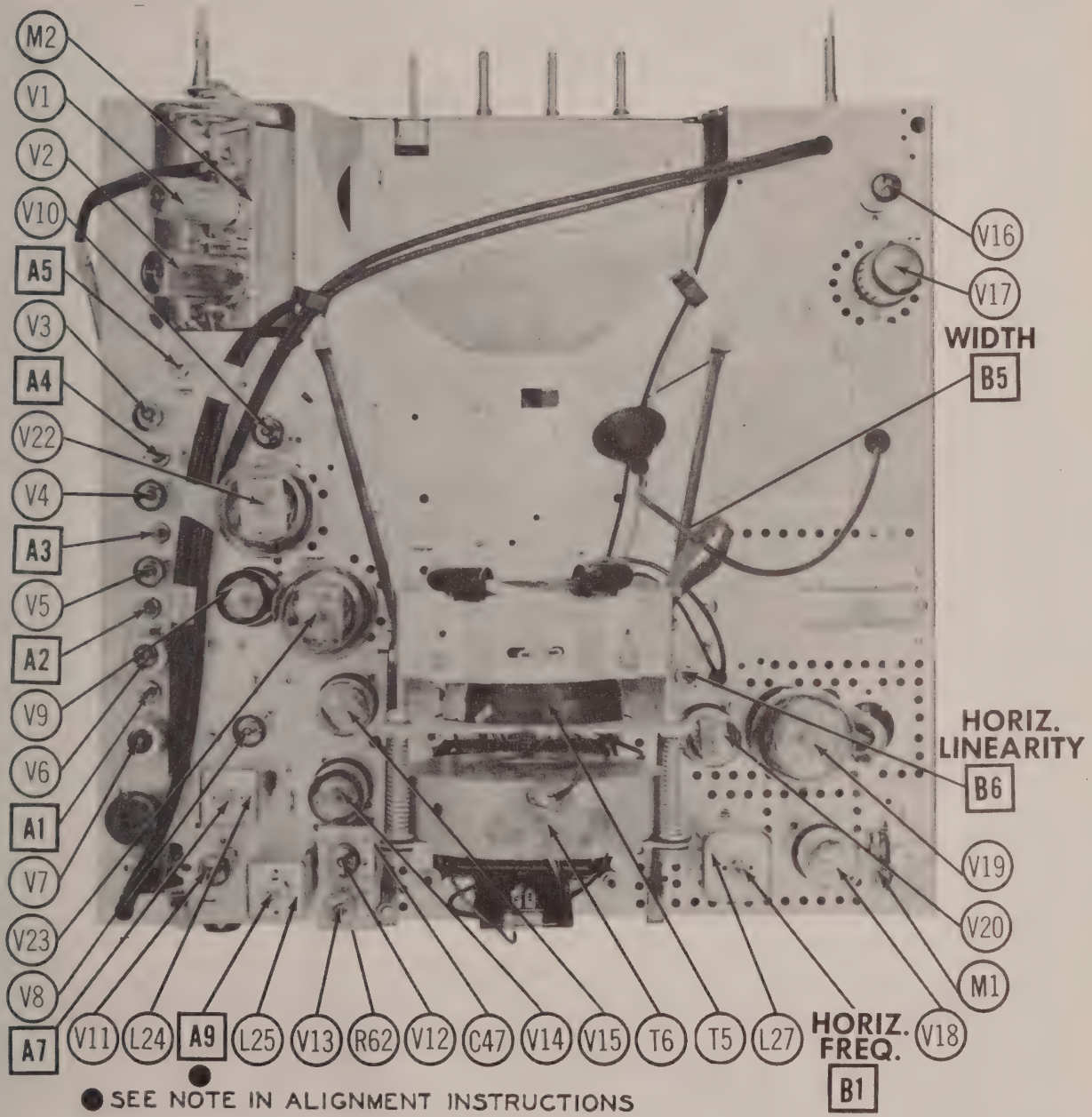
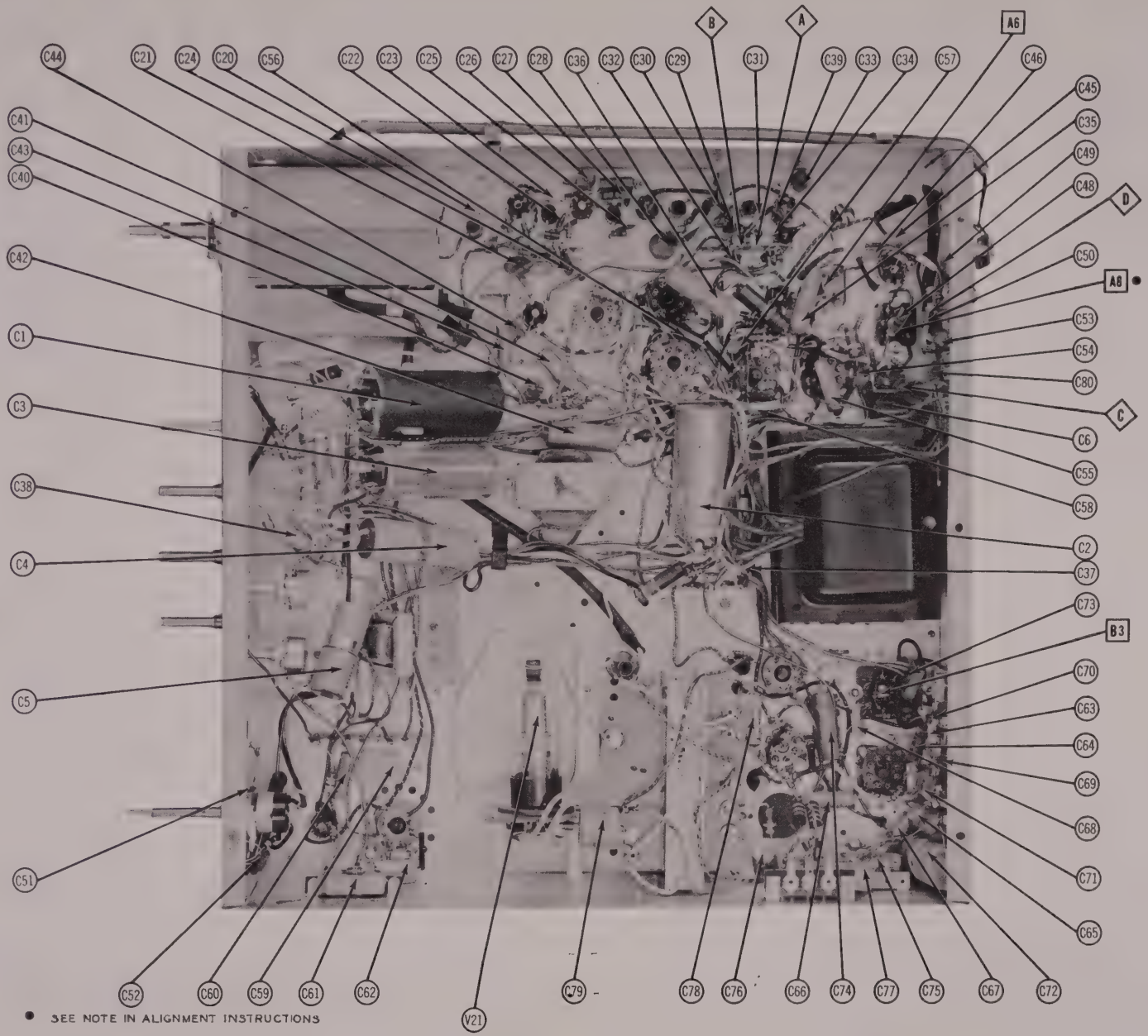
105V LINE
CROSLEY MODELS S11-442M1U, S11-444MU, S11-453MU, S11-459MU, S11-472B1U, S11-474BU, S17CDC1, S17CDC2, S17CDC3, S17CDC4, S17COC1, S17COC2, S17COC3

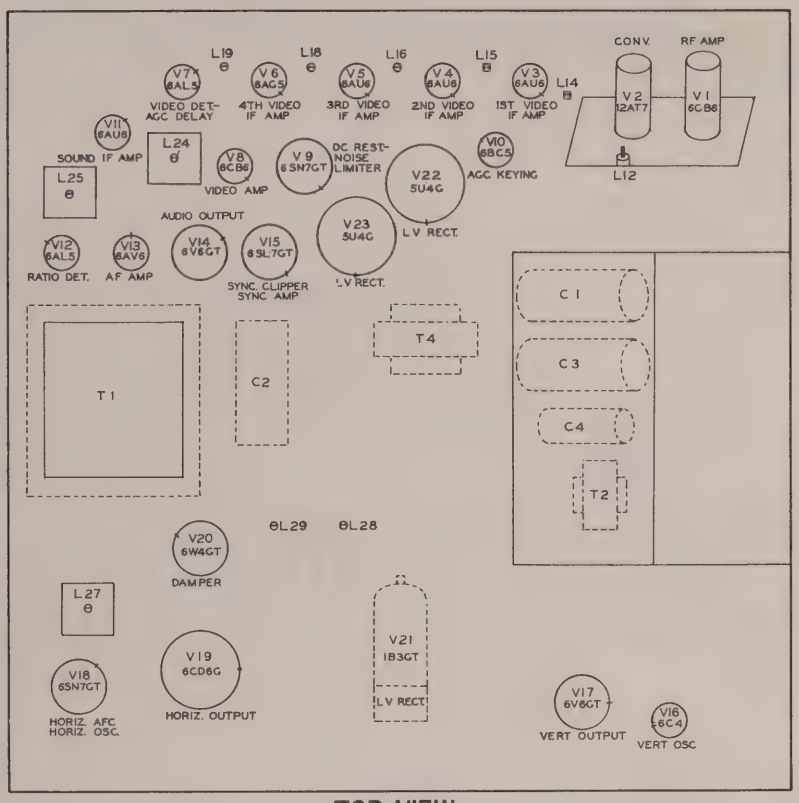
CROSLEY MODELS S11-442M1U, S11-444MU, S11-453MU, S11-459MU, S11-472B1U, S11-474BU, S17CDC1, S17CDC2, S17CDC3, S17CDC4, S17COC1, S17COC2, S17COC3



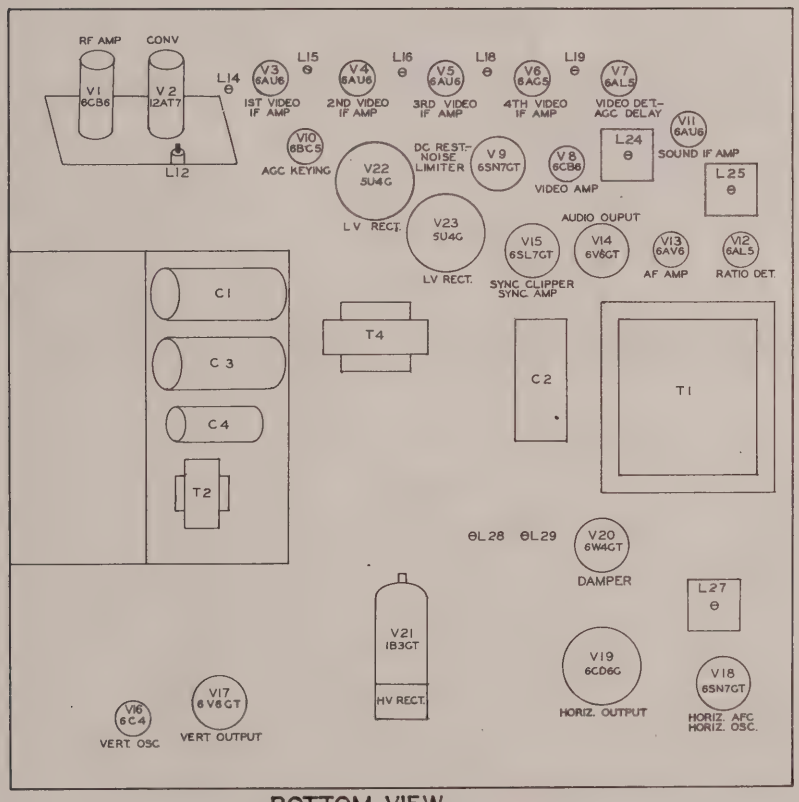
CHASSIS TOP VIEW



CHASSIS BOTTOM VIEW-CAPACITOR AND ALIGNMENT IDENTIFICATION



TOP VIEW



BOTTOM VIEW

TUBE PLACEMENT CHART

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

The end of the high voltage lead should be securely taped and kept away from the chassis. Do not remove the horizontal oscillator to disable the high voltage.

VIDEO IF ALIGNMENT

Connect the negative lead of a 3 volt battery to the ungrounded lead of R39, connect the positive lead to chassis.
Turn the tuner to approximately 4 or 5 turns clockwise, from fully counter-clockwise, to a point which causes no spurious responses. To check for spurious responses, turn the tuning control slightly. If the response curve changes, tune to another position.
During video IF alignment the common lead of the VTVM is connected to approximately 6 volts with respect to chassis.
Avoid grounding the VTVM case.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
1.	Direct	High side to an ungrounded tube shield floating over converter tube (V2). Low side to chassis.	24 MC (Unmod.)	See instructions above.	DC probe to point (A). Common to point (B).	A1	Adjust for maximum deflection. Attenuate signal gen. to maintain 2 volt reading.
2.	"	"	22.2MC	"	"	A2	"
3.	"	"	26.55MC	"	"	A3	"
4.	"	"	22.9MC	"	"	A4	"
5.	"	"	25.5MC	"	"	A5	Adjust for maximum deflection. Attenuate signal gen. to maintain 2 volt reading. Repeat entire procedure.

OVERALL VIDEO IF RESPONSE CHECK

Connect the synchronized sweep voltage from the signal generator to the horizontal input of the oscilloscope for horizontal deflection.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
6.	Direct	High side to an ungrounded tube shield floating over converter tube, (V2) Low side to chassis.	24MC (10MC SWP)	21.9MC 22.9MC 25.5MC 26.4MC	See instructions above (VTVM alignment)	Vert. Amp. to Point (A). Low side to chassis.		Check for response curve similar to figure 1. If necessary retouch A1 thru A5 for proper response.

SOUND IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

Connect two matched 100KΩ (±1%) resistors in series from Point C to chassis. The junction of these two resistors is alignment Point E as shown on the schematic.
Ratio detector transformers with a red or green color code have the primary adjustment, (A8), on the bottom, and the secondary adjustment, (A9), on top. Transformers without color code have primary on top and secondary on bottom.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
7.	.01MFD	High side to pin 1, (grid), of 6CB6, (V8). Low side to chassis.	4.5MC (unmod.)	Any Channel not used locally.	DC probe to Point (C). Common to chassis.	A6, A7, A8	Adjust for maximum deflection.
8.	"	"	"	"	DC probe to Point (D). Common to Point (E).	A9	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

SOUND IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated signal with 60% modulation and 450KC sweep. Use 120% sawtooth voltage in scope for horizontal deflection.
See Note under VTVM alignment concerning ratio detector transformer.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
7.	.01MFD.	High side to pin 1, (Grid) of 6CB6, (V8). Low side to chassis.	4.5MC (450KC SWP)	4.5MC	Any channel not used locally.	Vert. Amp. to Point (C). Low side to chassis.	A6, A7, A8	Disconnect stabilizer capacitor C6. Adjust for maximum amplitude and symmetry as per figure 2.
8.	"	"	"	"	"	Vert. Amp. to Point (D). Low side to chassis.	A9	Reconnect capacitor C6. Adjust A9 so 4.5MC occurs at center of crossover lines as per figure 3. SLIGHTLY retouch A8 for maximum amplitude and straightness of crossover lines.

THE TUNER PORTION OF THIS RECEIVER HAS BEEN PROPERLY ALIGNED AT THE FACTORY AND IS VERY STABLE. ALIGNMENT OF THIS PORTION SHOULD NOT BE REQUIRED IN THE FIELD.

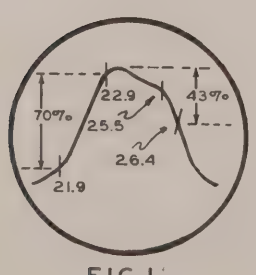


FIG.1

FIG.2

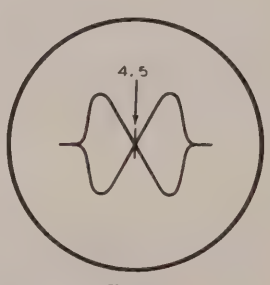
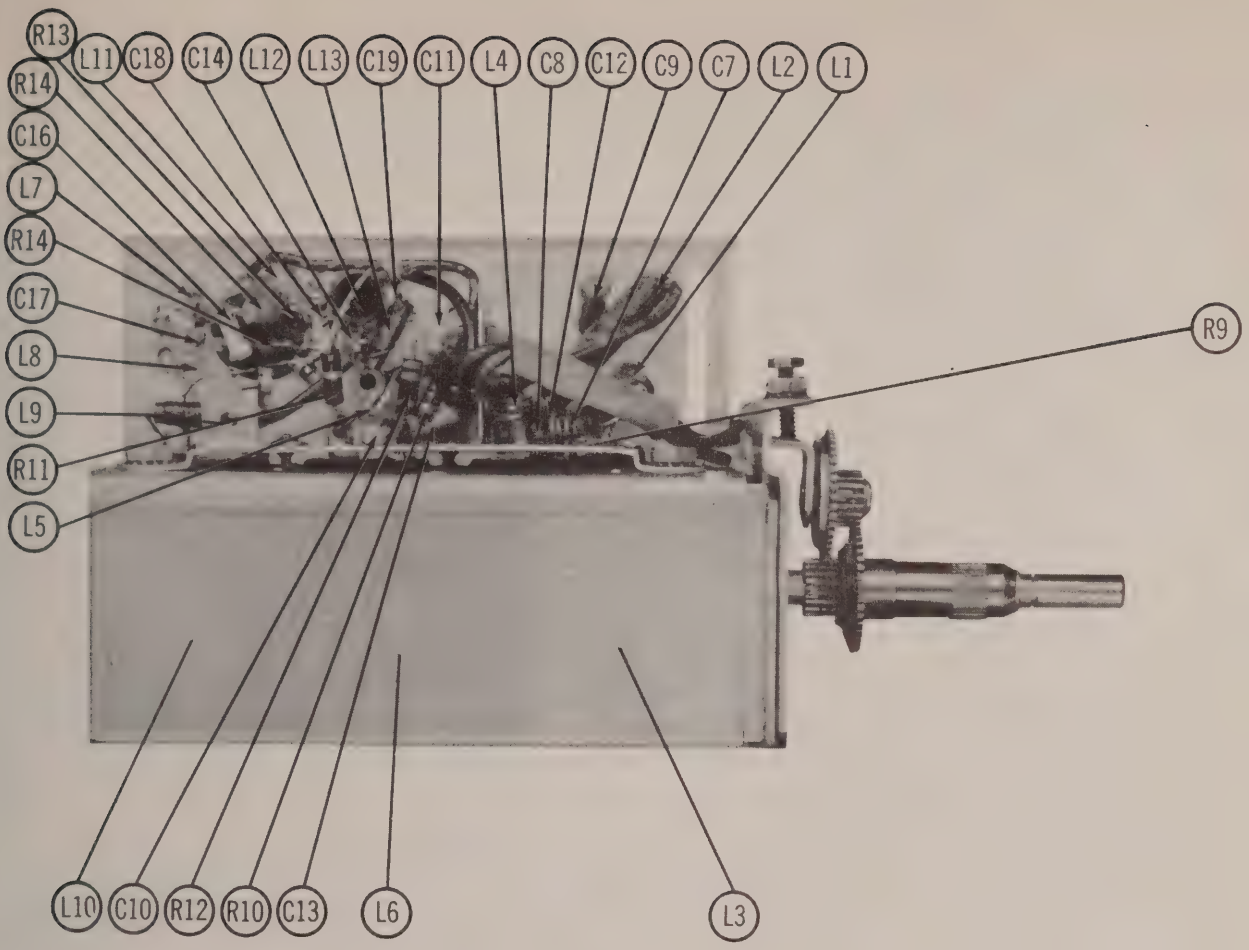


FIG.3



RF TUNER
DISASSEMBLY INSTRUCTIONS

1. Remove three push-on type control knobs.
2. Remove four 1/8" hex head screws from rear cover. Remove rear cover.
3. Disconnect built-in antenna.
4. Disconnect speaker.
5. Remove two wing nuts from speaker. Remove speaker.
6. Remove five 7/16" hex head bolts from chassis. Remove chassis.

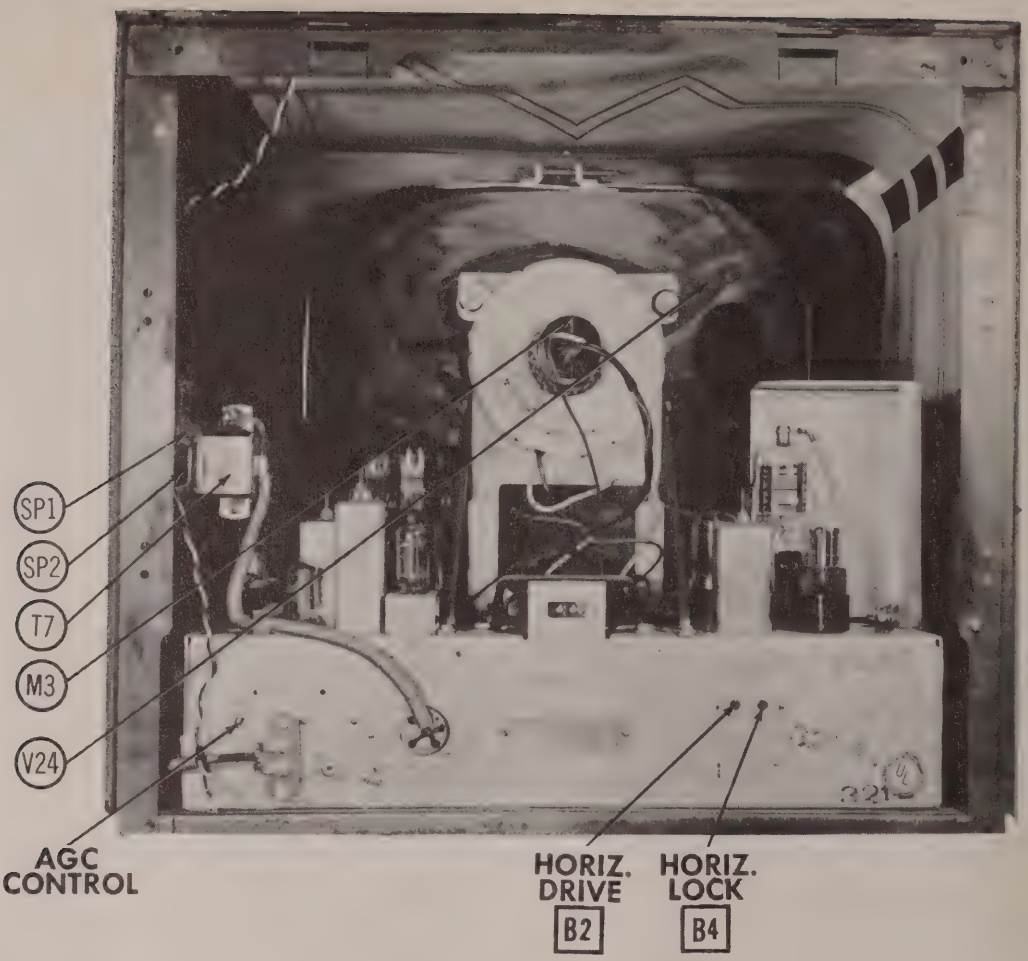
NOTE: FOR PICTURE TUBE REMOVAL IT IS NECESSARY TO REMOVE THE CHASSIS AS OUTLINED ABOVE.

RESISTANCE MEASUREMENTS

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6CB6	270KΩ	82Ω	0Ω	.1Ω	■268Ω	■15KΩ	0Ω		
V 2	12AT7	■200Ω	1Meg	0Ω	0Ω	0Ω	■200Ω	15KΩ	0Ω	.1Ω
V 3	6AU6	35KΩ	0Ω	.1Ω	0Ω	■200Ω	■200Ω	68Ω		
V 4	6AU6	16KΩ	0Ω	.1Ω	0Ω	■300Ω	■300Ω	68Ω		
V 5	6AU6	8.2KΩ	100Ω	.1Ω	0Ω	■400Ω	■400Ω	100Ω		
V 6	6AG5	.6Ω	220Ω	0Ω	.1Ω	■500Ω	■500Ω	220Ω		
V 7	6AL5	0Ω	127Ω	.1Ω	0Ω	4.7KΩ	0Ω	250KΩ		
V 8	6CB6	4.7KΩ	60Ω	.1Ω	0Ω	†12KΩ	†75KΩ	60Ω		
V 9	6SN7GT	0Ω	47KΩ	300KΩ	4.7KΩ	Inf.	220Ω	.1Ω	0Ω	
V 10	6BC5	100KΩ	220Ω	.1Ω	0Ω	110KΩ	■8.2KΩ	220Ω		
V 11	6AU6	2.3Ω	0Ω	.1Ω	0Ω	■18KΩ	■18KΩ	220Ω		
V 12	6AL5	Inf.	Inf.	0Ω	.1Ω	0Ω	0Ω	18KΩ		
V 13	6AV6	3.9Meg	0Ω	0Ω	.1Ω	0Ω	0Ω	■220KΩ		
V 14	6V6GT	Inf.	■.1Ω	†760Ω	†380Ω	■470KΩ	■390Ω	■0Ω	■660Ω	
V 15	6SL7GT	■1Meg	†18KΩ	■0Ω	■3.3Meg	#50KΩ	■6.8KΩ	■.1Ω	■0Ω	
V 16	6C4	#1.6Meg	Inf.	.11	0Ω	#1.6Meg	2Meg	0Ω		
V 17	6V6GT	Inf.	.1Ω	†3KΩ	†3KΩ	2.2Meg	500Ω	0Ω	1.7KΩ	
V 18	6SN7GT	250KΩ	#100KΩ	0Ω	1.1Meg	#80KΩ	300KΩ	.1Ω	0Ω	
V 19	6CD6G	Inf.	.1Ω	0Ω	1Meg	1Meg	†17KΩ	0Ω	†17KΩ	Top Cap #35Ω
V 20	6W4GT	Inf.	†300Ω	110KΩ	Inf.	†300Ω	Inf.	■0Ω	■.1Ω	
V 21	1B3GT	PINS 1-8 HAVE INF. RESISTANCE								Top Cap #10KΩ
V 22	5U4G	Inf.	30KΩ	†2.2KΩ	580Ω	Inf.	580Ω	†50Ω	30KΩ	
V 23	5U4G	Inf.	30KΩ	.1Ω	580Ω	Inf.	580Ω	■0Ω	30KΩ	
V 24	17BP4	0Ω	220KΩ	PIN 10 †280Ω	PIN 11 †15KΩ	PIN 12 .1Ω				

ALL CONTROLS SET FOR NORMAL OPERATION
† MEASURED FROM PIN 8 OF V22 AND V23
■ MEASURED FROM 105V LINE
MEASURED FROM PIN 3 OF V20



CABINET-REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Turn the set on and tune in a TV station, preferably a test pattern.
Turn the horizontal hold control to the mid-position of its range.
Adjust the horizontal frequency slug, (B1), until the picture synchronizes horizontally.
Adjust the horizontal drive trimmer, (B2), counter-clockwise until the picture width begins to decrease or crowding begins to appear in the picture. Turn the contrast control and check to see if the linearity in the center portion changes. If necessary turn B2 slightly clockwise, until the linearity does not change with change of contrast.
Connect the vertical input of an oscilloscope thru a 10 MMF. capacitor to terminal 5 of L27.
Adjust the waveform slug, (B3), until the broad and narrow peaks of the waveform on the scope are of equal height as shown in figure 4. If necessary during adjustment of B3, retouch B1 to keep the picture synchronized.
Turn the horizontal hold control to fully clockwise.
Adjust the horizontal frequency slug, (B1), counter-clockwise until the picture is out of synchronization and shows one vertical or diagonal bar.
Turn the horizontal hold control to fully counter-clockwise, the picture should be in synchronization. Momentarily interrupt the signal by tuning to another channel and back again. If more than 7 sloping bars are present turn the lock-in trimmer, (B4), slightly counter-clockwise until 5 to 7 bars are present. If less than 5 bars are present, turn B4 slightly clockwise.
Since the horizontal frequency is effected by the lock-in trimmer, it may be necessary to retouch B1. Repeat the adjustment of B4 and B1 until the proper pull-in range is obtained at both ends of the hold control.
The picture should hold synchronization over at least 120 rotations of the hold control.
Adjust the width slug, (B5), until the picture is slightly wider than necessary to fill the mask horizontally.
Adjust the horizontal linearity slug, (B6), until the picture is symmetrical from left to right.
Since both width and horizontal linearity are effected by the drive trimmer, it may be necessary to readjust B2 for optimum results. However it is recommended that the entire procedure be repeated if B2 if changed.

AGC ADJUSTMENT

Tune in a weak station and turn the contrast control to fully clockwise.
Adjust the AGC control until the picture just begins to overload.

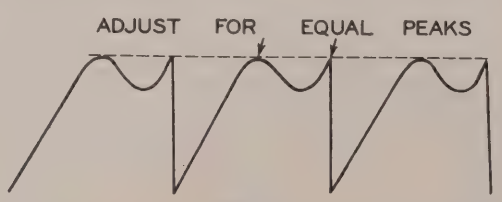
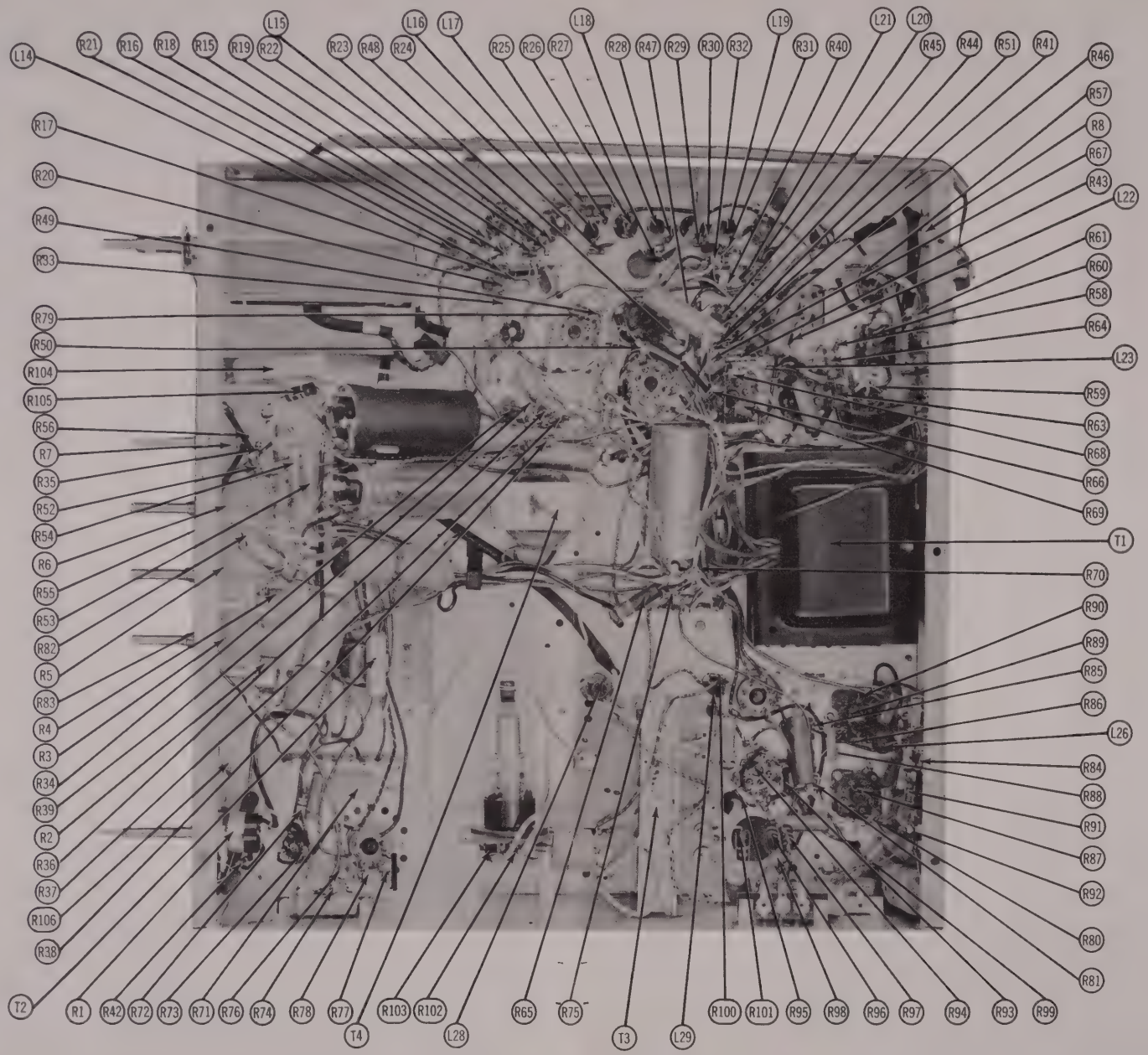


FIG. 4



CHASSIS BOTTOM VIEW-RESISTOR AND INDUCTOR IDENTIFICATION

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: CROSLEY PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	NOTES
V1	RF Amplifier	6CB6	6CB6	7CM	
V2A	Converter	12AT7	12AT7	9A	
B	Converter	6J6	6J6	7BF	
V3	1st. Video IF Amp.	6AU6	6AU6	7BK	
V4	2nd. Video IF Amp.	6AU6	6AU6	7BK	
V5A	3rd. Video IF Amp.	6AU6	6AU6	7BK	
B	3rd. Video IF Amp.	6AG5	6AG5	7BD	
C	3rd. Video IF Amp.	6BC5	6BC5	7BD	
V6A	4th. Video IF Amp.	6AG5	6AG5	7BD	
B	4th. Video IF Amp.	6BC5	6BC5	7BD	
V7	Video Detector-AGC Delay	6AL5	6AL5	6BT	
V8A	Video Amplifier	6CB6	6CB6	7CM	
B	Video Amplifier	6AH6	6AH6	7BK	
V9	DC Restorer-Noise Limiter	6SN7GT	6SN7GT	8BD	
V10A	AGC Keying	6BC5	6BC5	7BD	
B	AGC Keying	6CB6	6CB6	7CM	
C	AGC Keying	6AG5	6AG5	7BD	
V11	Sound IF Amp.	6AU6	6AU6	7BK	
V12	Ratio Detector	6AL5	6AL5	6BT	
V13	AF Amplifier	6AV6	6AV6	7BT	
V14	Audio Output	6V6GT	6V6GT	7AC	
V15	Sync. Clipper-Sync. Amplifier	6SL7GT	6SL7GT	8BD	
V16	Vert. Oscillator	6C4	6C4	6BG	
V17	Vert. Output	6V6GT	6V6GT	7AC	
V18	Horiz. AFC Horiz. Oscillator	6SN7GT	6SN7GT	8BD	
V19	Horiz. Output	6CD6G	6CD6G	5BT	
V20	Damper	6W4GT	6W4GT	4CG	
V21	HV Rectifier	1B3GT	1B3GT	3C	
V22	LV Rectifier	5U4G	5U4G	5T	
V23	LV Rectifier	5U4G	5U4G	5T	

CATHODE-RAY TUBE

ITEM No.	REPLACEMENT DATA: CROSLEY PART No.	SYLVANIA PART No.	THOMAS PART No.	RMA BASE TYPE	NOTES
V24A	16TP4	16TP4	16KP4 ①	12D	① Space permitting
B	17BP4	17BP4A	17BP4	12D	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: CROSLEY PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C1A	40	475	B-146633	AFH2-72		UP4450		TVL-2830	▲ Filter
B	40	475							▲ Filter
C2A	40	475	B-149106	†AFH3-54		UPT430		TVL-4817	● Decoupling
B	10	475		†PRS350/4					■ Vert. Output Dec.
C	4	350							▲ Video Amp. Screen Decoupling
D	40	300							● Decoupling
C3A	40	475	B-148429	AFH3-192		UPT303		TVL-2830	■ Decoupling
B	40	250						TVA-1310	▲ Vert. Amp. Cathode
C	100	50							Audio Output Dec.
C4A	40	300	B-149281	†PRS450/40		†BR4035		TVA-1611	Audio Output Cathode
B	10	25		†PRS25/10		BR102A		TVA-1204	Bias Filter
C5	500	10	B-149038	PRS12 500		BRH125A		TVA-1132	Stabilizing Cap.
C6	10	25	B-149211	PRS25/10		BR102A		TVA-1204	RF Coupling
C7	27		C-137727-49				N080-331-270		Fixed Trimmer
C8	27		C-137727-49				N080-331-270		AGC Filter
C9	1500		C-137727-113	SI 500	D6-152		GP2L-152	5HK-D15	RF Amp. Plate
C10	1500		C-137727-113	SI1500	D6-152		GP2L-152	5HK-D15	RF Amp. Screen
C11	1500		C-137727-113	SI1500	D6-152		GP2L-152	5HK-D15	RF Amp. Cathode
C12	4.7		W-137398-6	SI4.7NP0	TCZ-4.7		N P0K-4R7		RF Amp. Fil.
C13	1500		C-137727-113	SI1500	D6-152		GP2L-152	5HK-D5	RF Amp. Fil.
C14	6		C-137727-106				N330K-060		RF Coupling
C15	1		W-137398-2		TCZ-1		NP0K-010		Osc. Coupling
C16	6		C-137727-106				N330K-060		Osc. Grid Cap.
C17	6		C-137727-106				N330K-060		Fixed Trimmer
C18	15		C-137727-41		TCN-15		N750K-150	5TCU-Q15	RF Bypass
C19	1500		C-137727-113	SI1500	D6-152		GP2L-152	5HK-D15	IF Coupling
C20	100		C-137727-108	SI100	D6-101	5WST1	GP1K-101	5GA-T1	AGC Filter
C21A	4000		C-144675-5	BPD-2X004	D6-402	1D5D4	822-004	5HK-2D4	RF Bypass
B	4000				D6-402	1D5D4			1st. Video IF Dec.
C22	5000		C-144675-2	BPD-005	DD-502	1D5D5	811-005	5HK-D5	IF Coupling
C23	100		C-137727-108	SI100	D6-101	5WST1	GP1K-101	5GA-T1	AGC Filter
C24	5000		C-144675-2	BPD-005	DD-502	1D5D5	811-005	5HK-D5	AGC Filter
C25	5000		C-144675-2	BPD-005	DD-502	1D5D5	811-005	5HK-D5	2nd. Video IF Dec.
C26	5000		C-144675-2	BPD-005	DD-502	1D5D5	811-005	5HK-D5	IF Coupling
C27	100		C-137727-108	SI100	D6-101	5WST1	GP1K-101	5GA-T1	3rd. Video IF Dec.
C28A	4000		C-144675-5	BPD-2X004	D6-402	1D5D4	822-004	5HK-2D4	3rd. Video IF Cathode
B	4000				D6-402	1D5D4			4th. Video IF Dec.
C29	5000		C-144675-2	BPD-005	DD-502	1D5D5	811-005	5HK-D5	4th. Video IF Cathode
C30	5000		C-144675-2	BPD-005	DD-502	1D5D5	811-005	5HK-D5	RF Bypass
C31	5000		C-144675-2	BPD-005	DD-502	1D5D5	811-005	5HK-D5	Bias Filter
C32	5000		C-144675-2	BPD-005	DD-502	1D5D5	811-005	5HK-D5	Video Det. Fil.
C33	5000		C-144675-2	BPD-005	DD-502	1D5D5	811-005	5HK-D5	Video Det. Filter
C34	5		C-137727-103	SI5NP0	TCZ-4.7		NP0K-050		Video Coupling
C35	.05	400	39001-17	P488-05	DF-503	PTE4S5		4TM-S5	Video Coupling
C36	.1	400	39001-19	P488-1	DF-104	PTE4P1		4TM-P1	Picture Tube Cathode
C37	5000	300	C-144675-2	BPD-005	DD-502	1D5D5	811-005	5HK-D5	Picture Tube Cathode
C38	.1		39001-19	P288-1	DF-104	PTE4P1		2TM-P1	AGC Filter
C39	5000		C-144675-2	BPD-005	DD-502	1D5D5	811-005	5HK-D5	AGC Filter
C40	5000		C-144675-2	BPD-005	DD-502	1D5D5	811-005	5HK-D5	AGC Filter
C41	.015	200	39001-14	P288-015					Keyed AGC Screen
C42	.25	200	39001-87	P488-25		GT2P25		2TM-P25	
C43	.002	600	39001-74	P688-002	D6-202	PTE6D2	GP2-333-202	6TM-D2	

CAPACITORS (CONT.)

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: CROSLEY PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C44	5000		C-144675-2	BPD-005	DD-502	1D5D5	811-005	5HK-D5	RF Bypass
C45	.02	400	39001-80	P488-02	DF-203	PTE4S2		4TM-S2	Sound IF Decoupling
C46	5000		C-144675-2	BPD-005	DD-502	1D5D5	811-005	5HK-D5	Sound IF Cathode
C47	5000		C-144675-2	BPD-005	DD-502	1D5D5	811-005		RF Bypass
C48	1000		C-137737-10	SI1000	D6-102	1W5D1	GP2L-102	5HK-D1	RF Bypass
C49	.005	600	39001-11	P688-005	D6-502	PTE6D5	GP2-333-502	6TM-D5	De-emphasis
C50	.01	400	39001-13	P488-01	D6-103	PTE4S1	GP2-333-103	4TM-S1	Audio Coupling
C51	.005	600	39001-11	P688-005	D6-502	PTE6D5	GP2-333-502	6TM-D5	Tone Comp.
C52	5000		C-144675-2	BPD-005	DD-502	1D5D5	811-005	5HK-D5	Volume Cont. Isolation
C53	.01	400	39001-13	P488-01	D6-103	PTE4S1	GP2-333-103	4TM-S1	Audio Coupling
C54A	.01								Audio Coupling
B	350		†W-149881		†PC-80				AF amp. Plate
C									Audio Output Grid
C55	.005	600	39001-11	P688-005	D6-502	PTE6D5	GP2-333-502	6TM-D5	Audio Output Plate
C56	.01	400	39477-41	P488-01	D6-103	PTE4S1	GP2-333-103	4TM-S1	Sync. Coupling
C57	120	500	B-137498-17	1468-00015	D6-121	SW5T15	GP2K-121	1FM-315	Sync. Coupling
C58	390	500	B-137498-38	1469-0004		5R5T4		MS-34	Sync. Amp. Cathode
C59A	.002			P688-002		PTE6D2	GP2-333-202		Vert. Integrator Net.
B	.005		♦W-149878	P688-005	♦PC-100	PTE6D5	GP2-333-502	♦101C1	Vert. Integrator Net.
C	.005			P688-005		PTE6D5	GP2-333-502		Vert. Integrator Net.
C60	.0047	600	39478-38	P688-0047	D6-472	PTE6D5	GP2-333-472	6TM-D47	Vert. Osc. Grid Cap.
C61	.06	400	C-146434-6	P488-05	DF-503	PTE4S5		4TM-S5	Vert. Discharge
C62	.1	400	39001-19	P488-1	DF-104	PTE4P1		4TM-P1	Vert. Sweep Coupling
C63	180	500	B-137498-24	1468-0002	D6-181	5W5T2	GP2K-181	1FM-32	Horiz. Sync. Coupling
C64	.0022	600	39477-37	P688-0022	D6-222	PTE6D2	GP2-333-222	6TM-D22	Horiz. Sync. Coupling
C65	.25	200	39001-87	P488-25		GT2P25		2TM-P25	AFC Filter
C66	.02	200	39001-80	P488-02	DF-203	PTE4S2		2TM-S2	AFC Filter
C67	.05	400	39001-17	P488-05	DF-503	PTE4S5		4TM-S5	AFC Plate
C68	200	500	B-137498-47	1469-0002		5R5T2		MS-32	Horiz. Osc. Grid Cap.
C69	.01	400	C-148813-2	P488-01	D6-103	PTE4S1	GP2-333-103	4TM-S1	Fixed Trimmer
C70	1300	500	B-137498-53						Horiz. Discharge
C71	.1	600	B-148317-5	P688-1	DF-104	PTE6P1		6TM-P1	Decoupling
C72	.5	600	B-148317-2	684-5		GT6P5			Decoupling
C73	820	500	B-137498-56	1464-0008		2R5T8		MS-38	Horiz. Sweep Coupling
C74	.05	400	39001-17	P488-05	DF-503	PTE4S5		4TM-S5	Horiz. Output Screen
C75	.2	200	B-149488-2	P488-22		GT4P2		2TM-P22	Horiz. Sweep Coupling
C76	.1	400	C-146434-3	P488-1	DF-104	PTE4P1		4TM-P1	Damper Filter
C77	.15	400	C-146434-10	P488-15				4TM-P15	Damper Filter
C78	.0022	1000	39477-54	P1088-0022		PTE16D2		MB-D22	Fixed Trimmer
C79	500	20000	W-147375	HV20A	TV1-502				HV Filter
C80	5000		C-144675-2	BPD-005	DD-502	1D5D5	811-005	5HK-D5	RF Bypass

♦ Items C59A, C59B, C59C, R71A, R71B, R71C are combined in one unit in some models.
† Items C54A, C54B, C54C, R63A, R63B are combined in one unit in some models. When replacing items separately, C54B and C54C should total 250MMF.

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: CROSLEY PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	INSTALLATION NOTES
R1A	1Meg	½	C-149220	SBB-655-S	RTV-245		Volume Control - Panel
B	2000Ω	½					Contrast Control and Switch - Rear
R2A	2.5Meg	½	B-148984	QU-239	AG-84-S	AN-83	Height Control
B	Shaft		Not req.	RQ	FKS-1/4	AK-1	Attach to R2A per instructions
R3A	1.5Meg	½	B-148952	QU-138	AG-83-S	AN-75	Vertical Hold Control
B	Shaft		Not req.	Not req.	RS-2	AK-4	Attach to R3A per instructions
R4A	5000Ω	½	B-148965	QU-114	AG-19-S	AN-10	Vertical Linearity
B	Shaft		Not req.	RQ	FKS-1/4	AK-1	Attach to R4A per instructions
R5A	50KΩ	½	B-148953	QU-123	AG-44-S	AN-31	Horiz. Hold Control
B	Shaft		Not req.	RQ	FKS-1/4	AK-1	Attach to R4A per instructions
R6A	40KΩ	½	B-148966	QU-123	AG-43-S	AN-31	Brightness Control
B	Shaft		Not req.	Not req.	RS-2	AK-4	Attach to R6A per instructions
R7	3000Ω	4	B-148963		58-3000		Focus Control
R8	1000Ω	½	W-148861	QU-108			AGC Control

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: CROSLEY PART No.	IRC PART No.	IDENTIFICATION CODES ALL RESISTORS ± 10% UNLESS OTHERWISE PSECIFIED
R9	82Ω	½		BTS-82	RF Amp. Cathode
R10	15KΩ	½		BTS-15K	RF Amp. Screen
R11	5600Ω	½		BTS-5600	RF Amp. Plate
R12	68Ω	½			RF Amp. Decoupling
R13	1Meg	½		BTS-1Meg	Mixer Grid
R14	15KΩ	½		BTS-15K	Osc. Grid
R15	15KΩ	5%	39375-77		1st. Video IF Amp. Grid
R16	68Ω	20%	39374-11		1st. Video IF Amp. Cathode
R17	100Ω	20%	39373-14	BTS-100	Decoupling
R18	100Ω	20%	39373-14	BTS-100	Decoupling
R19	100Ω	20%	39373-14	BTS-100	Decoupling
R20	100Ω	20%	39373-14	BTS-100	Decoupling
R21	8200Ω	5%	39375-71	BTS-8200	AGC Network - See Note 1
R22	6800Ω	5%	39375-69		2nd. Video IF Amp. Grid
R23	68Ω		39375-17		2nd. Video IF Amp. Cathode
R24	100Ω	20%	39373-14	BTS-100	Decoupling
R25	8200Ω	5%	39375-71		3rd. Video IF Amp. Grid
R26	100Ω		39374-13	BTS-100	3rd. Video IF Amp. Cathode
R27	100Ω	20%	39373-14	BTS-100	Decoupling
R28	6800Ω	5%	39375-69		4th. Video IF Amp. Grid
R29	220Ω		39374-17	BTS-220	4th. Video IF Amp. Cathode
R30	8200Ω	5%	39375-71	BTS-8200	5th. Video IF Transformer Shunt
R31	100Ω	20%	39373-14		Bias Filter
R32	100KΩ		39374-49	BTS-100K	AGC Keying Grid
R33	8200Ω		39374-36	BTS-8200	AGC Keying Screen
R34	1000Ω	20%	39373-33	BTS-1000	AGC Network
R35	560KΩ	5%	39375-115	BTS-560K	AGC Network
R36	330KΩ	5%	39375-109	BTS-330K	AGC Network
R37	100KΩ		39375-97	BTS-100K	AGC Network
R38	8200Ω		39374-36	BTS-8200	AGC Network
R39	10KΩ		39375-73	BTS-10K	AGC Network
R40	4700Ω	5%	39375-65		Video Amp. Grid
R41	82KΩ	1	39374-136	BTA-82K	Video amp. Screen
R42	47Ω	½	39374-9		Video Amp. Cathode

RESISTORS (CONT.)

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: CROSLEY PART No.	IRC PART No.	IDENTIFICATION CODES
R43	12KΩ	5% 1	39375-223	BTA-12K	Voltage Divider
R44	22KΩ	2	39374-217	BTB-22K	Voltage Divider
R45	22KΩ	2	39374-217	BTB-22K	Voltage Divider
R46	3300Ω	½	39374-31	BTS-3300	Isolation
R47	180KΩ	½	39374-53	BTS-180K	DC Restorer Diode Load
R48	120KΩ	½	39374-50	BTS-120K	DC Restorer Diode Load
R49	47KΩ	½	39374-45	BTS-47K	Voltage Divider
R50	820KΩ	½	39374-60	BTS-820K	Voltage Divider
R51	100KΩ	½	39374-49	BTS-100K	Picture Tube Grid
R52	6800Ω	1	39374-123	BTA-6800	Voltage Divider
R53	39KΩ	2	39374-220	BTB-39K	Voltage Divider
R54	47KΩ	2	39374-221	BTB-47K	Voltage Divider
R55	6800Ω	1	39374-123	BTA-6800	Brightness Control Shunt
R56	2200Ω	½	39374-29	BTS-2200	Voltage Divider
R57	220Ω	½	39374-17	BTS-220	Sound IF Amp. Cathode
R58	18KΩ	½	39374-40	BTS-18K	Sound IF Amp. Decoupling
R59	18KΩ	5% ½	39375-79		Ratio Detector Diode Load
R60	22Ω	½	39374-5		Balancing
R61	27KΩ	½	39374-42	BTS-27K	De-emphasis
R62	3.9Meg	½	39374-75	BTS-3.9Meg	AF Amp. Grid
R63A	220KΩ	½	†W-149881		AF Amp. Plate
B	470KΩ	½			Output Grid
R64	270Ω	2	39374-194		Output Cathode
R65	390Ω	20% 2	39374-196	BTB-390	Voltage Divider
R66	1Meg	½	39374-61	BTS-1Meg	Sync. Clipper Grid
R67	18KΩ	½	39374-40	BTS-18K	Sync. Clipper Plate
R68	3.3Meg	½	39373-100	BTS-3.3Meg	Sync. Amp. Grid
R69	6800Ω	½	39374-35	BTS-6800	Sync. Amp. Cathode
R70	270KΩ	1	39374-142	BTA-270K	Voltage Divider
R71A	22KΩ	½			Integrator Network
B	8200Ω	½	♦W-149878		Integrator Network
C	8200Ω	½			Integrator Network
R72	1.2Meg	½	39374-63	BTS-1.2Meg	Vertical Osc. Grid
R73	27KΩ	½	39374-42	BTS-27K	Vertical Osc. Transformer Shunt
R74	220KΩ	½		BTS-220K	Vertical O_{SC}. Plate - See Note 2
R75	27KΩ	½	39374-42	BTS-27K	Decoupling
R76	8200Ω	½	39374-36	BTS-8200	Vertical Peaking
R77	2.2Meg	½	39374-69	BTS-2.2Meg	Vertical Output Grid
R78	1000Ω	1	39374-113	BTA-1000	Vertical Output Cathode
R79	2200Ω	2	39374-205	BTB-2200	Decoupling
R80	820KΩ	½	39374-60	BTS-820K	Horiz. AFC Grid
R81	150KΩ	½	39374-51	BTS-150K	Horiz. AFC Cathode
R82	100KΩ	1	39374-137	BTA-100K	Horiz. AFC Plate
R83	68KΩ	½	39374-47	BTS-68K	Voltage Divider
R84	8200Ω	½	39374-36	BTS-8200	Horiz. AFC Filter
R85	150KΩ	½	39374-51	BTS-150K	Voltage Divider
R86	150KΩ	½	39374-51	BTS-150K	Horiz. Feedback Network
R87	2.7Meg	½	39374-71	BTS-2.7Meg	Horiz. Feedback Network
R88	100KΩ	5% ½	39375-97		Horiz. Osc. Grid
R89	10KΩ	½	39374-37	BTS-10K	Horiz. Osc. Coil Shunt
R90	22KΩ	½	39374-41	BTS-22K	Horiz. AFC Filter
R91	68KΩ	1	39374-135	BTA-68K	Horiz. Osc. Plate
R92	33KΩ	½	39374-131	BTA-33K	Decoupling
R93	100Ω	½	39373-14		Parasitic Suppressor
R94	1Meg	½	39373-92	BTS-1Meg	Horiz. Output Grid
R95	100Ω	½	39373-14		Parasitic Suppressor - Wire Wound
R96	33KΩ	2	39374-219	BTB-33K	Horiz. Output Screen
R97	33KΩ	2	39374-219	BTB-33K	Horiz. Output Screen
R98	6800Ω	1	39374-123	BTA-6800	Horiz. Output Screen
R99	1000Ω	½	39373-33	BTS-1000	Decoupling
R100	22KΩ	½	39374-41	BTS-22K	Voltage Divider
R101	10KΩ	5% 2			HV Rectifier Plate
R102	8.2Ω	½	39303-19		HV Filament - Wire Wound
R103	1Meg	1	39373-202		HV Filter
R104	330Ω	10	W-148554-2		Focus Coil Shunt - Wire Wound
R105	27Ω	2	39374-182		Voltage Divider
R106	68KΩ	½	39373-54	BTS-68K	Tone Compensation

♦ Items R71A, R71B, R71C, C59A, C59B, C59C are combined in one unit in some models.
† Items R63A, R63B, C54A, C54B, C54C are combined one unit in some models.
Note 1 Some models use 10KΩ resistor in this application.
Note 2 Some models use 680KΩ resistor in this application.

TRANSFORMER (POWER)

ITEM No.	RATING: PRI.	RATING: SEC. 1	RATING: SEC. 2	RATING: SEC. 3	REPLACEMENT DATA: CROSLEY PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.
T1	117VAC	640VCT	5VAC	6.3VAC				
	@ 2.3A	@ 2.2A	@ 6A	@ 1.95A				
				SEC. 4				
				6.3VAC				
				@ 8A				

TRANSFORMER (SWEEP CIRCUITS)

ITEM No.	RATING: DC RESISTANCE PRI.	RATING: DC RESISTANCE SEC.	REPLACEMENT DATA: CROSLEY PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	NOTES
T2	700Ω	180Ω 175Ω	B-146842-3	A-8111①	A-3000 ① HVO-7	T8O-1 ①	Vert. Block Osc. Trans. Horiz. Output Trans.
T3	26Ω	SEC. 2 8Ω Taps 3.3Ω and 4.9Ω SEC. 3 0Ω	AD-151195				
T4	800Ω Tap 14Ω		B-148970	A-8123	A-3036	TSO-5 ①	Vert. Output Trans.
T5A	14Ω		AC-148887-6	DY-8	MDF-70		Horiz. Deflection Coils
B	68Ω						Vert. Deflection Coils
T6	490Ω		AB-149539	FC-11	MF-2		Focus Coil

① Drill one new mounting hole.

PARTS LIST CONTINUED ON PAGE 15

PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		CROSLEY PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	
	PRI.	SEC.	PRI.	SEC.					
T7	6KΩ	4Ω	380Ω	.6Ω	B149460 or B149654 or B149476	A-3877①	A-3019	RO-9 ①	① Drill one new mounting holes.

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			NOTES
	FIELD RES.	V. C. IMP.	CROSLEY PART No.	VIKING PART No.	QUAM PART No.	
SP1A B	50Ω PM	4Ω 4Ω	AD-149502 138762-5 ②	10J12	52E50S 10A4A	② Used in some models as alternate with 50Ω Filter Choke (Part # B-149475)
	CONE DIA.	V. C. DIA.				
SP2A	5 1/8"	9/16"				

COILS (RF-IF)

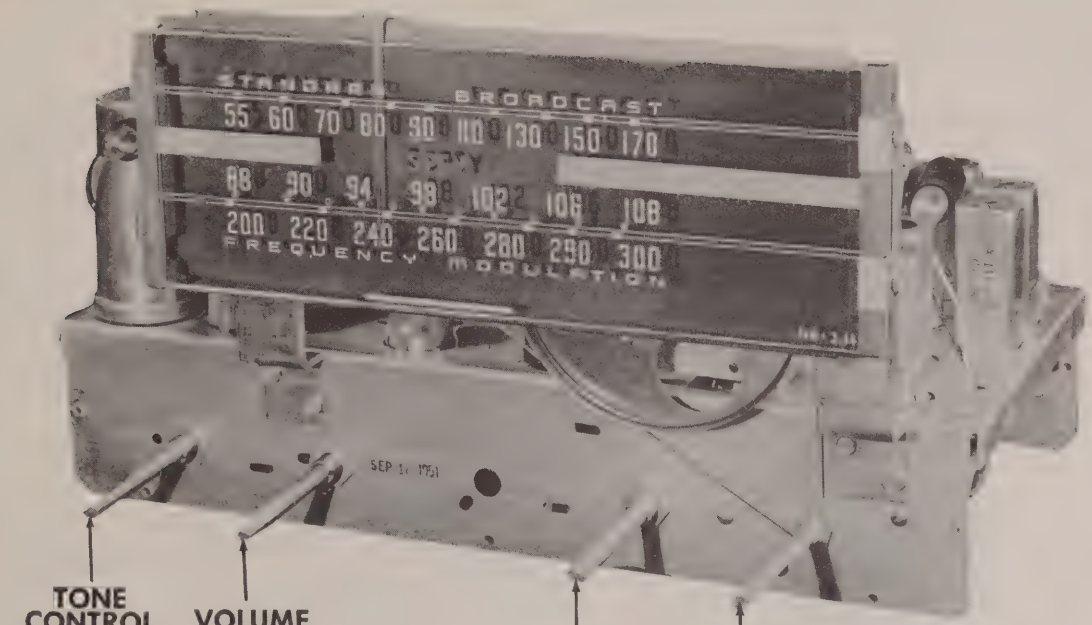
ITEM No.	USE	DC RES.		REPLACEMENT DATA		NOTES
		PRI.	SEC.	CROSLEY PART No.	IRC PART No.	
L1	Ant Coil Shunt	.59Ω		B-148936-2	CLA	.82 Microhenries
L2	RF Choke	6.1Ω		B-148936-3	CL-1	8.2Microhenries
L3	Ant. Coil	0Ω		W-149222		
L4	Ant. End Inductor	0Ω		AW-149071		
L5	RF End Inductor	0Ω		AW-149070		
L6	RF Coil	0Ω		W-149222		
L7	Coupling Choke	.1Ω		AW-149086		
L8	Osc. End Inductor	0Ω		AW-149069		
L9	Osc. Coil Shunt	0Ω		AW-149062		
L10	Osc. Coil	0Ω		W-149222		
L11	Plate Choke	0Ω		AW-149072		
L12	Conv. Plate Coil	.5Ω		AW-149088		
L13	RF Choke	0Ω		AW-149063		
L14	1st. Video IF	.3Ω		AW-146763		
L15	2nd. Video IF	.3Ω		AW-146582		
L16	3rd. Video IF	.3Ω		AW-146583		
L17	Fil. Choke	0Ω		AW-143934		
L18	4th. Video IF	.5Ω	.6Ω	AW-147974		
L19	5th. Video IF	.7Ω	.8Ω	AW-148983		
L20	Peaking	11Ω		AW-149357		Wound on 10KΩ resistor (orange dot)
L21	Peaking	18Ω		AW-146889		Blue dot
L22	Peaking	25Ω		AC-150200		Wound on 6.8KΩ resistor
L23	Peaking	11Ω		AW-150202		Wound on 47KΩ resistor (green dot)
L24	Sound IF	2.7Ω	2.3Ω	AC-146782		
L25	Ratio Det. Trans.	4.6Ω	.2Ω	C-146874		Tap .6Ω
L26	Delay Coil	110Ω		AW-148440		
L27	Horiz. Osc.	80Ω	48Ω	AC-146698		
L28	Width Coil	18Ω	13Ω	AW-149492		
L29	Horiz. Lin.	10Ω		AW-148452		

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA				REMARKS
			CROSLEY PART No.		LITTELFUSE PART No		
			FUSE	HOLDER	FUSE	HOLDER	
M1	3AG Slo Blo Pigtail	.250	W-150431		315.250		

MISCELLANEOUS

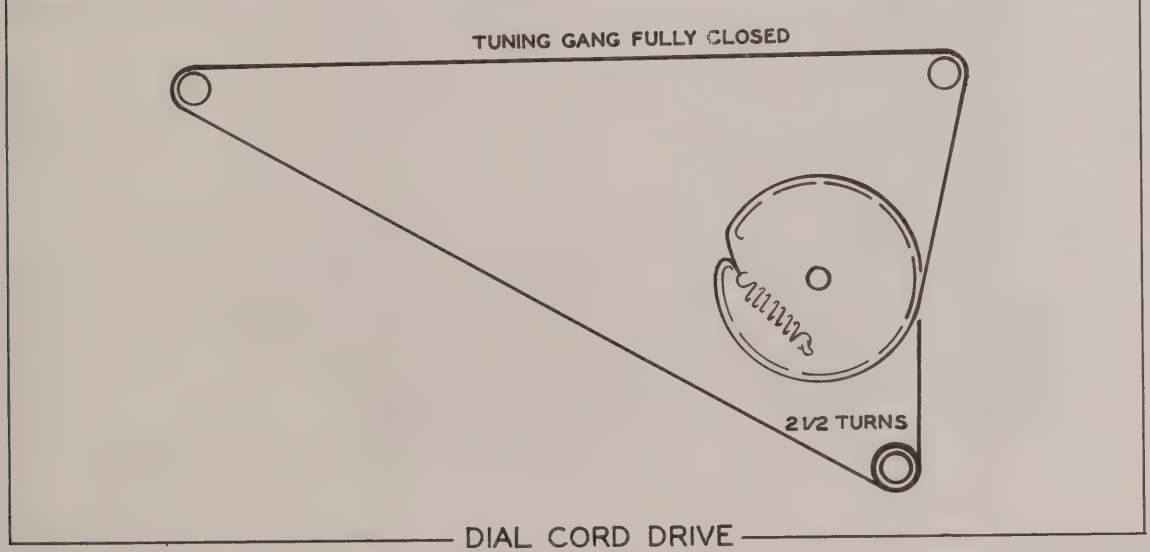
ITEM No.	PART NAME	CROSLEY PART No.	NOTES
M2	RF Tuner	AW-149159	
M3	Ion Trap	B-148484	
B2, B4	Trimmer	B-132386-17	Dual (Horiz. Drive 10-160MMF, Horiz. Lock 10-160MMF)
	Filter Choke	B-149475	50Ω (Used only in models employing PM speaker)
	Knob	AW-148865	Off/On, Contrast (S11-442M1U, S11-444MU, S11-453MU, S17CDC1, C17CDC3, C17COC1
	Knob	AW-148866	Volume, Tuning (S17COC2
	Knob	AW-148867	
	Knob	AW-149852	Off/On Volume
	Knob	AW-149854	Volume (S11-472IU, S11-474BU
	Knob	AW-149853	Tuning (S17CDC2, S17CDC4, S17COC3


BROADCAST
55 60 70 80 90 110 130 150 170
88 90 94 98 102 106 108
200 220 240 260 280 290 300
FREQUENCY MODULATION
TONE CONTROL ON-OFF SW.
VOLUME CONTROL
FUNCTION SELECTOR SWITCH
TUNING CONTROL

ESPEY
MODEL 7C

ESPEY
MODEL 7C

TRADE NAME	Espey, Model 7C
MANUFACTURER	Espey Mfg. Co., Inc., 528 E. 72nd St., New York 21, New York
TYPE SET	AC Operated AM-FM Superheterodyne Receiver
TUBES (TWELVE)	Types 6BA6 FM RF Amp., 12 AT7 FM Conv., 6BE6 AM Conv., 6BA6 1st IF Amp., 6SH7 2nd FM IF Amp., 6AL5 Ratio Det., 6SQ7 Det-AVC-Phono Pre-Amp., 6SQ7 1st AF Amp., 12AT7 2nd AF-Phase Inv., (2) 6V6GT Power Output, 5Y3GT Rectifier
POWER SUPPLY	110-120 Volts AC RATING .82 Amp. @ 117 Volts AC
TUNING RANGE-BROADCAST	535-1720KC FREQ. MOD. 88-108MC



DIAL CORD DRIVE

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

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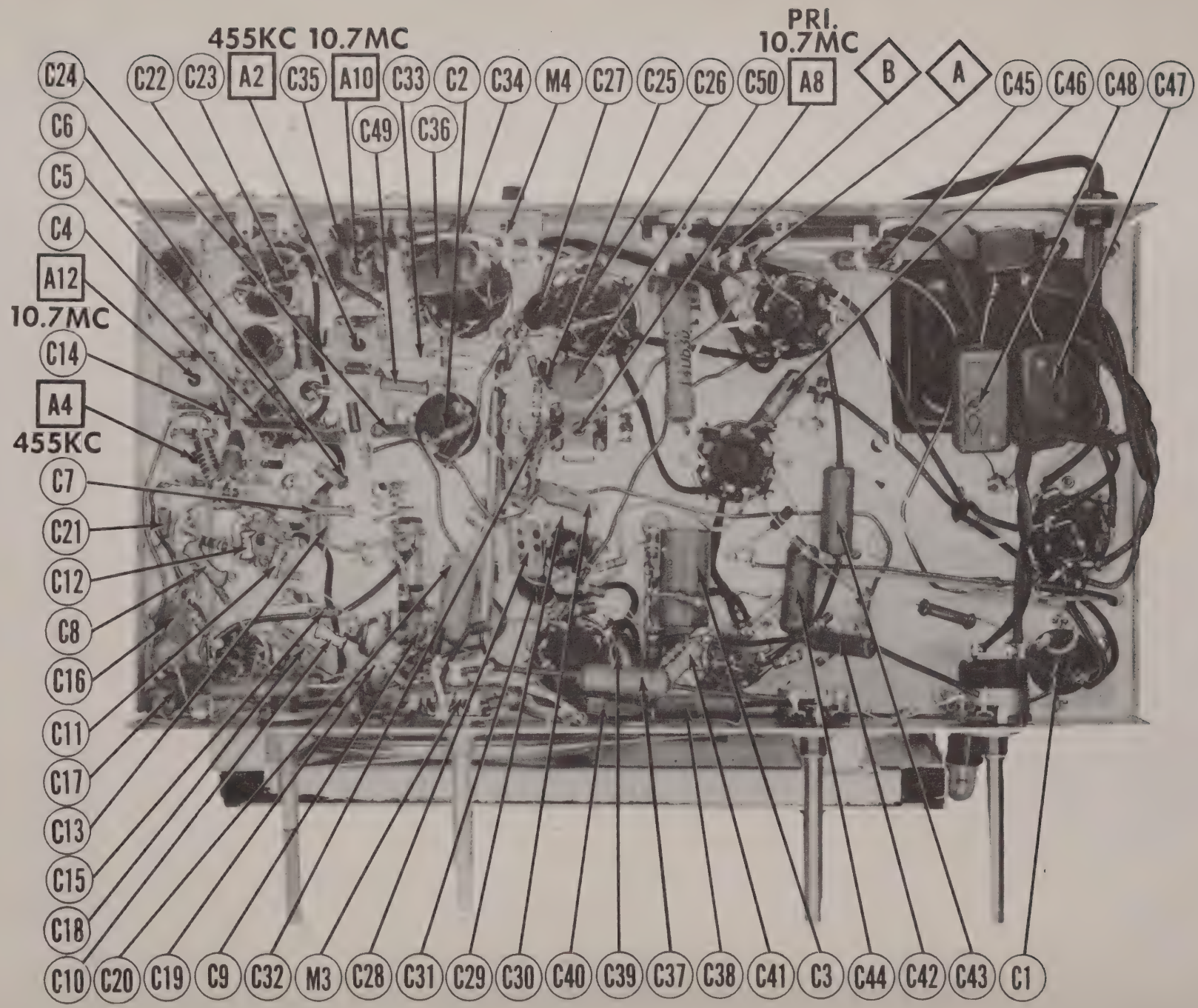
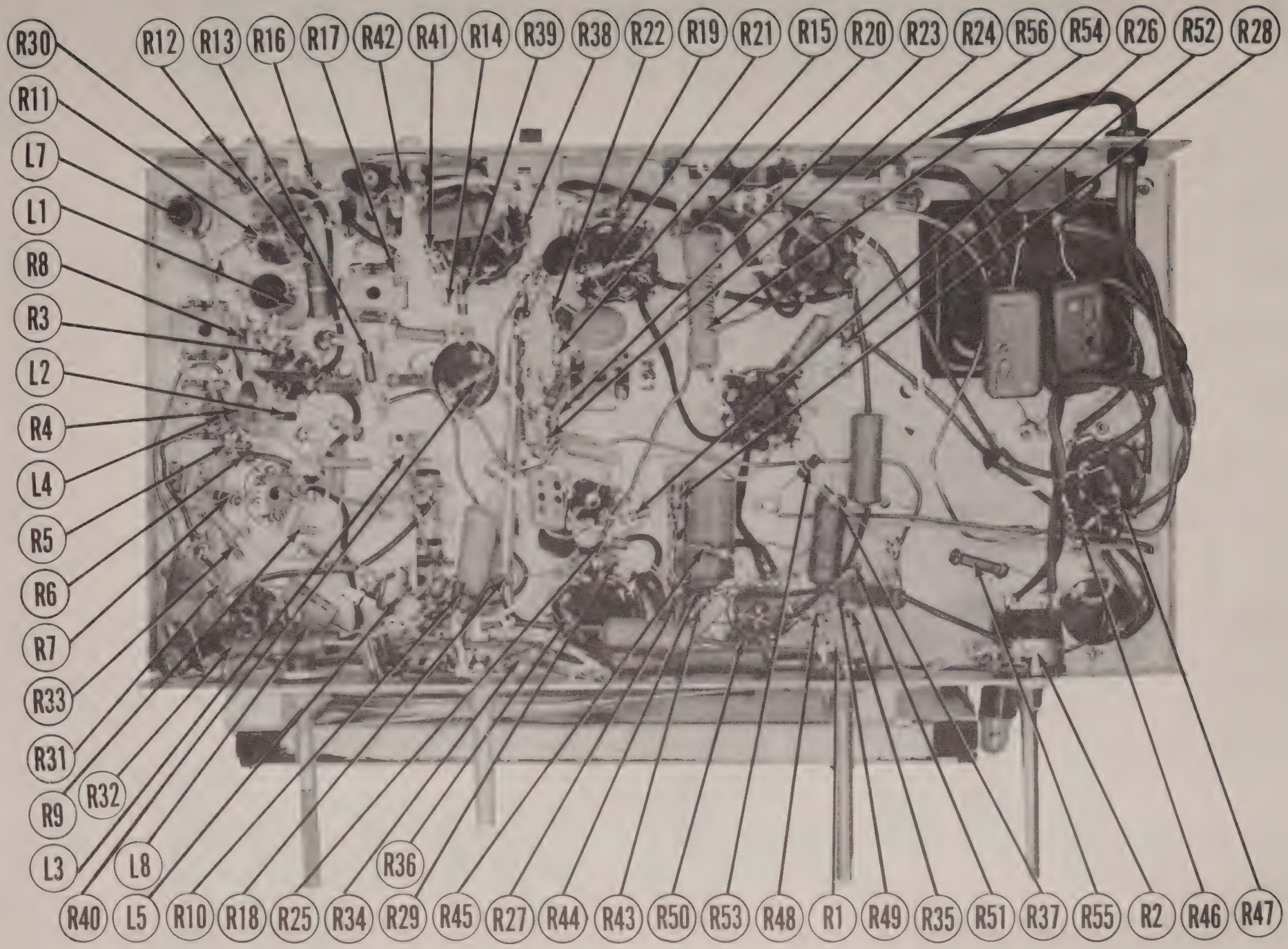

455KC 10.7MC
PRI. 10.7MC
C24
C22
C23
A2
C35
A10
C33
C2
C34
M4
C27
C25
C26
C50
A8
B
A
C45
C46
C48
C47
C6
C49
C36
C5
C4
A12
10.7MC
C14
A4
455KC
C7
C21
C12
C8
C16
C11
C17
C13
C15
C18
C10
C20
C19
C9
C32
M3
C28
C31
C29
C30
C40
C39
C37
C38
C41
C3
C44
C42
C43
C1


R30
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R29
R45
R27
R44
R43
R50
R53
R48
R1
R49
R35
R51
R37
R55
R2
R46
R47

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer turn tuning gang fully closed and set pointer to the index mark on the left end of the AM dial scale

AM ALIGNMENT

Loop should be maintained in same relative position to chassis as when receiver is in cabinet. Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.05 MFD	High side to Stator on rear AM section of tuning gang. Low side to chassis	455 KC (400~Mod.)	AM (CW)	Tuning Gang fully open	Across voice coil	A1, A2, A3, A4	Adjust for maximum output.
2.		Loop	1500 KC	"	1500 KC	"	A5, A6,	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3.		Loop	600KC	"	600 KC	"	A7	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output. Repeat steps 2 & 3.

FM IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
4.	.01MFD	High side to pin 1 (grid) of 6BA6, (V4) Low side to chassis	10.7MC	FM (center)	Tuning gang fully closed	DC probe to Point (A) common to chassis.	A8, A9 A10	Adjust for max. Deflection
5.	"	High side to pin 7, (grid) of 12AT7, (V2). Low side to chassis.	"	"	"	"	A11, A12	"
6.	"	"	"	"	"	DC probe to Point (B) common to chassis.	A13	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

FM IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated signal with 60~ modulation and 450KC sweep. Use 120~ sawtooth voltage in scope for

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT SCOPE	ADJUST	REMARKS
4.	.01MFD	High side to pin 1. (grid), of 6BA6, (V4). Low side to chassis.	10.7MC (450KC SWP)	FM	Point of non-interference.	Vert. Amp. to point (A) Low side to chassis.	A8, A9, A10.	Disconnect stabilizor capacitor C3. Adjust for maximum amplitude and symmetry as per fig. 1.
5.	"	High side to pin 7, (grid) of 12AT7 (V2). Low side to chassis.	"	"	"	"	A11, A12	"
6.	"	"	"	"	"	Vert. Amp. to Point (B) Low side to chassis.	A13	Adjust A13 so 10.7 MC occurs at center of cross-over lines as per fig. 2. SLIGHTLY retouch A8 for maximum amplitude and straightness of crossover lines.

FM RF ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
7.	Two 120Ω carbon resistors	Across FM ant. terminals with 120Ω in each lead.	106 MC (Unmod.)	FM	106 MC	DC probe to Point (A) Common to chassis.	A14, A15	Adjust for max. deflection. Attenuate signal generator to maintain 2 volt reading.
8.	"	"	90 MC	"	90MC	"	L3	Check coil with a tuning wand. If necessary expand or compress turns of L3 for maximum deflection. If L3 is changed repeat steps 7 & 8 until no further improvement can be made.

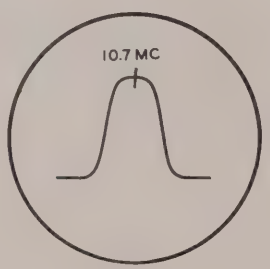


FIG. 1

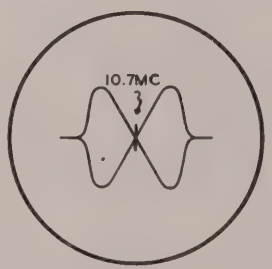


FIG. 2

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: ESPEY PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RTMA BASE TYPE	INSTALLATION NOTES
V1	FM RF Amp.	6BA6	6BA6	7BK	
V2	FM Conv.	12AT7	12AT7	9A	
V3	AM Conv.	6BE6	6BE6	7CH	
V4	1st IF Amp.	6BA6	6BA6	7BK	
V5	2nd FM IF Amp.	6SH7	6SH7	8BK	
V6	Ratio Det.	6AL5	6AL5	6BT	
V7	Det-Avc-Phono pre-Amp.	6SQ7	6SQ7	8Q	
V8	1st AF-FM AVC	6SQ7	6SQ7	8Q	
V9	2nd AF-Phase Inv.	12AT7	12AT7	9A	
V10	Power Output	6V6GT	6V6GT	7AC	
V11	Power Output	6V6GT	6V6GT	7AC	
V12	Rectifier	5Y3GT	5Y3GT	5T	

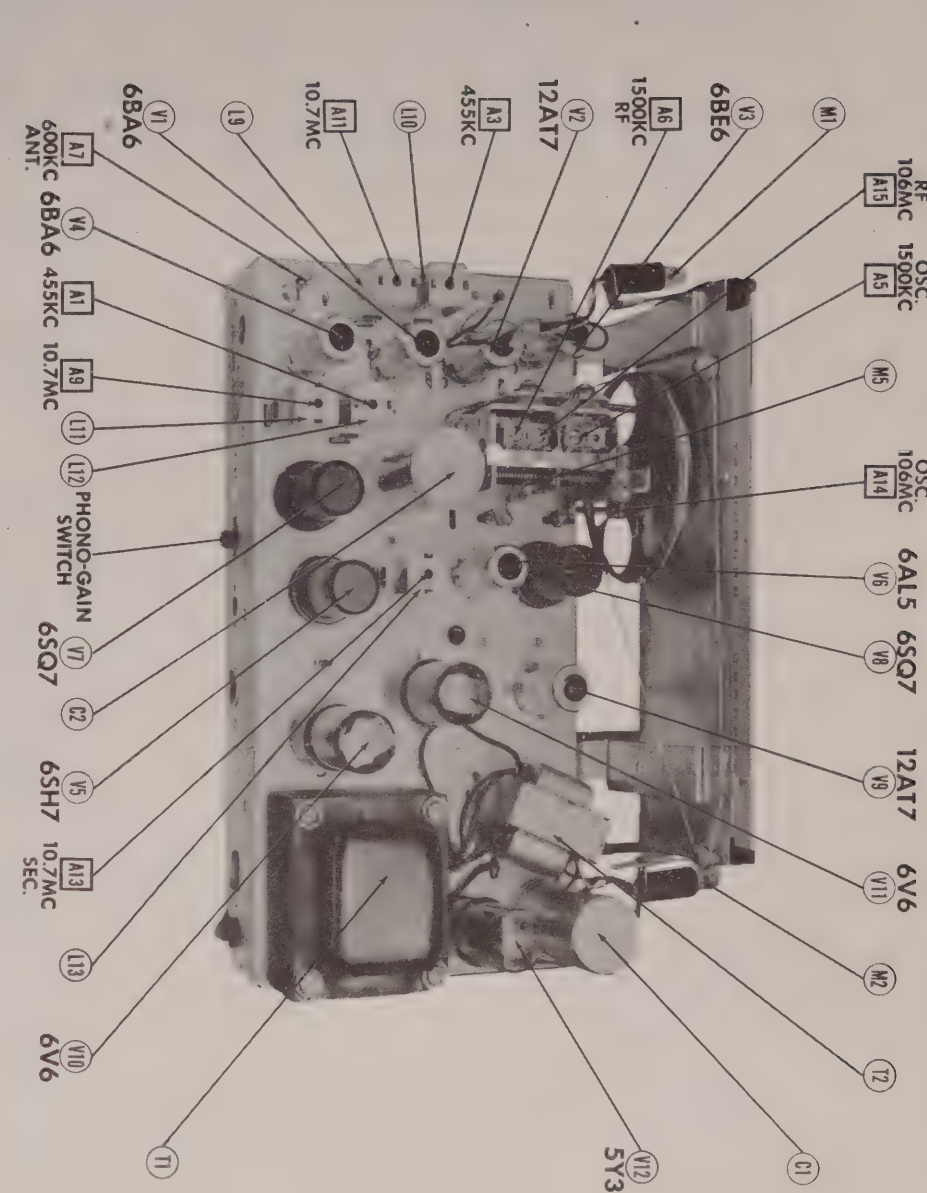
CAPACITORS

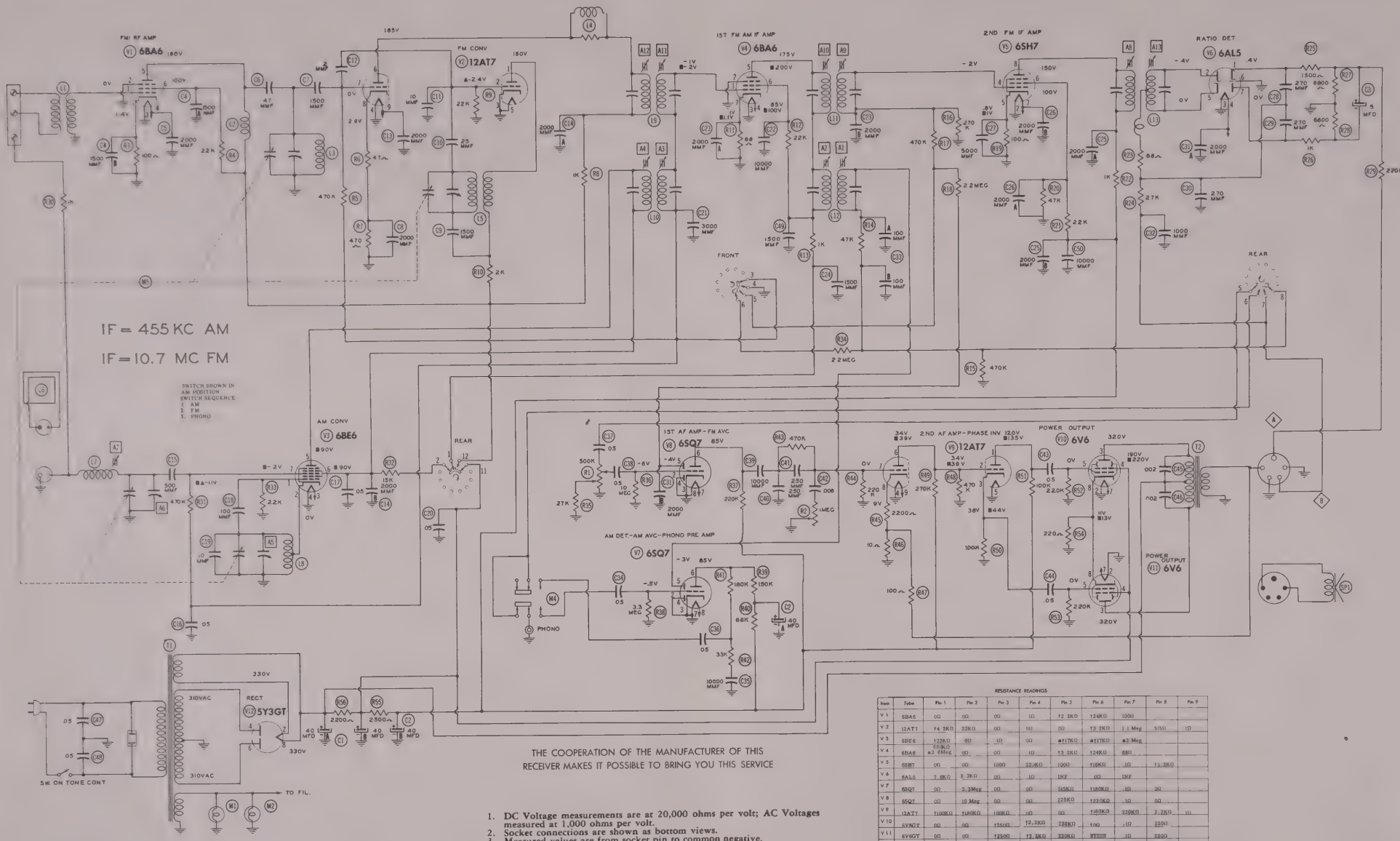
Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA: ESPEY PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C1A	40	450		AFH 2-57		UPT4445		TVL-2764	▲ Filter
B	40	450							▲ Filter
C2A	40	450		AFH 2-57		UP4445		TVL-2764	▲ Decoupling #
B	40	450							▲ Decoupling #
C3	5	250		PRS250/4		BR425		TVA-1501	Stabilizing Cap.
C4A	1500			BPD-2X0015	DD-2-152	1W5D15	812-0015	5HK-2D15	FM RF Amp. Screen
B	1500					1W5D15			FM RF Amp. Cathode
C	1500			BPD-0015	DD-152	1W5D15	801-0015	5HK-D15	Not used
C5	2000			SI2000	D6-202	1W5D2	GP2-333-202	5HK-D2	FM RF Amp. Fil ¶
C6	47				TCZ-47		NPOL-470	5TCC-Q47	FM RF Coupling
C7	1500			SI1500	D6-152	1W5D15	GP2L-152	5HK-D15	FM RF Coupling
C8	2000			SI2000	D6-202	1W5D2	GP2-333-202	5HK-D2	FM Mixer Cathode
C9	1500			SI1500	D6-152	1W5D15	GP2L-152	5HK-D15	FM Osc. Plate Dec.
C10	25			SI25NPO			NPOK-250	5TCC-Q25	FM Osc. Grid Cap.
C11	10			SI10N750	TCN-10		N750K-100	5TCU-Q1	Fixed Trimmer
C12	2				TCZ-2.2		NPOK-2R2		FM Osc. Coupling
C13	2000			SI2000	D6-202	1W5D2	GP2-333-202	5HK-D2	FM Conv. Fil.
C14A	2000			BPD-2X002	DD-3-202	1W5D2	812-002	5HK-2D2	FM Mixer Plate Dec.
B	2000					1W5D2			AMConv. Dec.
C15	500			SI500	D6-501	5W5T5	GP2K-501	5GA-T5	AM RF Coupling
C16	.05	400		P488-05	DF-503	PTE4S6		4TM-S5	AVC Filter
C17	.05	400		P488-05	DF-503	PTE4S5		4TM-S5	AM Osc. Anode
C18	100	500		1468-0001	D6-101	5W5T1	GPIK-101	1FM-31	AM Osc. Grid Cap.
C19	10			SI10N750	TCN-10		N750K-100	5TCU-Q1	Fixed Trimmer
C20	.05	400		P488-05	DF-503	PTE4S5		4TM-S5	RF Bypass
C21	3000			SI3000	D6-302	1W5D3	GP2-333-302	5HK-D33	AVC Filter
C22	10000			BPD-01	DD-103	1D3S1	821-01	5HK-S1	1st IF Amp. Screen
C23A	2000			BPD-2X002	DD-3-202	1W5D2	812-002	5HK-2D2	1st IF Amp. Cathode
B	2000					1W5D2			AVC Filter
C24	1500			SI1500	D6-152	1W5D15	GP2L-152	5HK-D15	RF Bypass
C25A	2000			BPD-2X002	DD-3-202	1W5D2	812-002	5HK-2D2	2nd FM IF Amp. Plate
B	2000					1W5D2			RF Bypass
C26A	2000			BPD-2X002	DD-3-202	1W5D2	812-002	5HK-2D2	2nd FM IF Amp. Screen
B	2000					1W5D2			2nd FM IF Amp. Fil.
C27	5000			BPD-005	DD-502	1D5D5	811-005	5HK-D5	2nd FM IF Amp. Cathode
C28	270	500		1468-0003	D6-271	5W5T3	GP2K-271	MS-33	Diode Load Cap.
C29	270	500		1468-0003	D6-271	5W5T3	GP2K-271	MS-33	Diode Load Cap.
C30	270	500		1468-0003	D6-271	5W5T3	GP2K-271	MS-33	Diode Load Cap
C31A	2000			BPD-2X002	DD-3-202	1W5D2	812-002	5HK-2D2	Ratio Det. Fil.
B	2000					1W5D2			AVC Filter
C32	1000			SI1000	D6-102	1W5D1	GP2L-102	5HK-DI	DE-Emphasis
C33A	100			SI100	•PC-50	5W5T1	GPIK-101	•100C1	Diode RF Filter
B	100			SI100		5W5T1	GPIK-101		Diode RF Filter
C34	.05	200		P288-05	DF-503	PTE4S5		2TM-55	Audio Coupling
C35	10000			BPD-01	DD-103	1D3S1	821-01	5HK-S1	Tone Comp.
C36	.05	400		P488-05	DF-503	PTE4S5		4TM-S5	Audio Coupling
C37	.05	200		P288-05	DF-503	PTE4S5		2TM-S5	Audio Coupling
C38	.05	200		P288-05	DF-503	PTE4S5		2TM-S5	Audio Coupling
C39	10000			BPD-01	DD-103	1D3S1	821-01	5HK-S1	Audio Coupling
C40	250	500		1468-00025	D6-251	5W5T25	GP2K-251	1FM-325	Tone Comp.
C41	250	500		1468-00025	D6-251	5W5T25	GP2K-251	1FM-325	Audio Coupling

SET 153 FOLDER 4

CHASSIS—TOP VIEW





THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6BA6	0Ω	0Ω	0Ω	1Ω	†2.2KΩ	124KΩ	100Ω		
V 2	12AT7	†4.2KΩ	22KΩ	0Ω	0Ω	0Ω	†3.2KΩ	1.1 Meg	515Ω	1Ω
V 3	6BE6	122KΩ	60Ω	1Ω	0Ω	●117KΩ	●117KΩ	●3 Meg		
V 4	6BA6	250KΩ ●2.6Meg	0Ω	0Ω	1Ω	†3.2KΩ	124KΩ	68Ω		
V 5	6SH7	0Ω	0Ω	100Ω	22.8KΩ	100Ω	110KΩ	1Ω	†3.2KΩ	
V 6	6AL5	†.8KΩ	8.2KΩ	0Ω	1Ω	INF	0Ω	INF		
V 7	6SQ7	0Ω	3.3Meg	0Ω	0Ω	515KΩ	180KΩ	1Ω	0Ω	
V 8	6SQ7	0Ω	10 Meg	0Ω	0Ω	225KΩ	122KΩ	1Ω	0Ω	
V 9	12AT7	†100KΩ	180KΩ	100KΩ	1Ω	0Ω	180KΩ	220KΩ	2.2KΩ	1Ω
V 10	6V6GT	0Ω	0Ω	†250Ω	†2.2KΩ	220KΩ	100	1Ω	220Ω	
V 11	6V6GT	0Ω	0Ω	†250Ω	†2.2KΩ	220KΩ	▓▓▓	1Ω	220Ω	
V 12	5Y3GT	100	45KΩ	0Ω	118Ω	INF	120Ω	INF	45KΩ	

ALL MEASUREMENTS TAKEN IN FM POSITION UNLESS NOTED
† MEASURED FROM PIN 8 OF V 12
● MEASURED IN AM POSITION
▲ TAKEN WITH VTVM

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PARTS LIST AND DESCRIPTIONS (Continued)

C42	.006	400		P688-006		PTE6D6	GP2-333-602	6TM-D6	Tone Comp.
C43	.05	400		P488-05	DF-503	PTE4S5		4TM-S5	Audio Coupling
C44	.05	400		P488-05	DF-503	PTE4S5		4TM-S5	Audio Coupling
C45	.002	600		P688-002	D6-202	PTE6D2	GP2-333-202	6TM-D2	Power Output Plate
C46	.002	600		P688-002	D6-202	PTE6D2	GP2-333-202	6TM-D2	Power Output Plate
C47	.05	400		P488-05	DF-503	PTE4S5		6TM-D2	Line Filter †
C48	.05	400		P488-05	DF-503	PTE4S5		6TM-S5	Line Filter †
C49	1500			SI1500	D6-152	1W5D15	GP2L-152	5HK-D15	1st IF Amp. Plate *
C50	10000			BPD-01	DD-103	1D3S1	821-01	5HK-S1	RF Bypass *

* Not used in all Models
† Some Models use 01MFD in this application
# Some Models use 10MFD in this application
¶ Some Models use 1500 MMF in this application
♦ Items C33A, C33B, R14 are combined in one unit

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA				INSTALLATION NOTES
	RESISTANCE	WATTS	ESPEY PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	
R1A	500KΩ	½	A9.127	QI8-133			Volume Control-tapped at 75KΩ
B	Shaft		Not Req.	Not Req.			Attach to R1A per instructions
R2A	1Meg.	½	A9.128	QI3-137	AG-63-Z	B-30-S	Tone Control
B	Shaft		Not Req.	Not Req.	Not Req.	Not Req.	Attach to R2A per instructions
C	Switch		Not Req.	76-1	SWB	Not Req.	Attach to R2A per instructions

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES	
	RESISTANCE	WATTS	ESPEY PART No.	IRC PART No.		
R3	100Ω	½		BTS-100	FM-RF Amplifier Cathode	
R4	22KΩ	1		BTA-22K	FM RF Amplifier Screen Dropping	
R5	470KΩ	½		BTS-470K	FM RF Converter Grid	
R6	47Ω	½			FM RF Converter Cathode	
R7	470Ω	½		BTS-470	FM RF Converter Cathode	
R8	1000Ω	½		BTS-1000	FM RF Converter Decoupling	
R9	22KΩ	½		BTS-22K	FM Oscillator Grid	
R10	2KΩ	½		BTS-2200	FM Oscillator Decoupling	
R11	68Ω	½			1st FM-IF Amplifier Cathode	See Note 1
R12	22KΩ	1		BTA-22K	1st FM-IF Amplifier Screen Dropping	
R13	1000Ω	½		BTS-1000	1st FM-IF Amplifier Decoupling	
R14	47KΩ	½		BTS-47K	RF Diode Filter	See Note 2
R15	470KΩ	½		BTS-470K	AVC Diode Load	
R16	270KΩ	½		BTS-270K	AVC Network	See Note 3
R17	470	½		BTS-470K	AVC Network	
R18	2.2Meg	½		BTS-2.2Meg	AVC Network	
R19	100Ω	½		BTS-100	2nd FM-IF Amplifier Cathode	
R20	47KΩ	1		BTA-47K	Bleeder	
R21	22KΩ	½		BTS-22K	2nd FM-IF Amplifier Screen Dropping	See Note 4
R22	1000Ω	½		BTS-1000	2nd FM-IF Amplifier Plate Decoupling	
R23	68Ω	½			Balancing	
R24	27KΩ	½		BTS-27K	De-Emphasis	See Note 5
R25	1500Ω	½		BTS-1500	Balancing	
R26	1000Ω	½		BTS-1000	Balancing	
R27	6800Ω	½		BTS-6800	Ratio Detector Diode Load	
R28	6800Ω	½		BTS-6800	Ratio Detector Diode Load	
R29	220KΩ	½		BTS-220K	AVC Network	
R30	1000	½		BTS-1000	Series AM Antenna	
R31	470KΩ	½		BTS-470K	AM Converter Grid	
R32	15KΩ	2		BTS-15K	AM Converter Screen Dropping	
R33	22KΩ	½		BTS-22K	AM Oscillator Grid	
R34	2.2Meg	½		BTS-2.2Meg	AVC Network	
R35	27KΩ	½		BTS-27K	Tone Compensation	See Note 6
R36	10Meg	½		BTS-10Meg	AF Amplifier Grid	
R37	220KΩ	½		BTS-220K	AF Amplifier Plate Load	
R38	3.3Meg	½		BTS-3.3Meg	Phono Amplifier Grid	
R39	150KΩ	½		BTS-150K	Phono Amplifier Plate Load	
R40	68KΩ	½		BTS-68K	Phono Amplifier Decoupling	
R41	180KΩ	½		BTS-180K	Phono Tone Compensation	
R42	33KΩ	½		BTS-33K	Phono Tone Compensation	
R43	470KΩ	½		BTS-470K	Phono Tone Compensation	
R44	220KΩ	½		BTS-220K	AF Amplifier Grid	
R45	2200Ω	½		BTS-2200	AF Amplifier Cathode	
R46	10Ω	½		BW-½-10	AF Amplifier Cathode	
R47	100Ω	½		BTS-100	Feed back	
R48	470KΩ	½		BTS-470K	Bleeder	

PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES	
	RESISTANCE	WATTS	ESPEY PART No.	IRC PART No.		
R49	270KΩ	½		BTS-270K	AF Amplifier Plate Load	See Note 3
R50	100K Ω	½		BTS-100K	Phase Inverter Cathode	
R51	100KΩ	½		BTS-100K	Phase Inverter Plate Load	
R52	220KΩ	½		BTS-220K	Output Grid	
R53	220KΩ	½		BTS-220K	Output Grid	
R54	220Ω	10		1 3/4A-225	Output Cathode	Wire Wound
R55	2500Ω	½		BTS-2700	Filter	
R56	2200Ω	10		1 3/4A-2250	Filter	Wire Wound

Note 1: Some Models may use 100Ω Resistor in this Application
Note 2: Items C33A, C33B & R14 are combined in one unit.
Note 3: Some Models may use a 220KΩ Resistor in this application.
Note 4: Some Models may use two 27KΩ Resistors in parallel in this application.
Note 5: Some Models may use a 68KΩ Resistor in this application.
Note 6: Some Models may use a 22KΩ Resistor in this application.

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA			
	PRI.	SEC. 1	SEC. 2	SEC. 3	ESPEY PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.
T1	117VAC ② .82A	600VCT .105ADC	③ 5VAC 2A	② 6.3VAC 4A	A18.107		P-3052	

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		ESPEY PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	
	PRI.	SEC.	PRI.	SEC.					
T2	7.6KΩ CT	3-4Ω	500Ω CT	14Ω	15.100		A-2936 ①		① Drill new mounting holes

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		
		PRI.	SEC.	ESPEY PART No.		
L1	FM Ant. Coil		0Ω			
L2	FM RF Choke		1.2Ω	A2.402		
L3	FM RF Coil		0Ω	A2.243		
L4	RF Choke		0Ω	A2.279		
L5	FM Osc. Coil	0Ω	0Ω	A2.222		
L6	Loop Ant.		.5Ω	C5.027		
L7	AM Ant. Coil		2Ω	A2.273		
L8	AM Osc. Coil	5.8Ω		B2.405		Tapped at .4Ω
L9	FM IF Trans.	.4Ω	.4Ω	N2.415		
L10	AM IF Trans.	16Ω	16Ω	C2.275		
L11	FM IF Trans.	.4Ω	.4Ω	N2.415		
L12	AM IF Trans.	16Ω	16Ω	C2.275		
L13	Ratio Det. Trans.	1.5Ω	.6Ω	C2.474		

DIAL LIGHTS

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		NOTES
					ESPEY PART No.		
M1	Bayonet	6.8	.15	Brown			Type Number 47
M2	Bayonet	6.8	.15	Brown			Type Number 47

MISCELLANEOUS

ITEM No.	PART NAME	ESPEY PART No.	NOTES
M3	Switch	12.204	Function
M4	Switch	12-199	Phono Gain
M5	2 Gang Var. Cap.	C6.068	(16-566MMF, 16-247MMF)

PHOTOFACT* Folder

*TRADE MARK

RTMA MEMBER RADIO-TELEVISION MANUFACTURERS ASSOCIATION

GENERAL ELECTRIC
MODELS 20C150, 20C151

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MODEL 20C150

GENERAL ELECTRIC
MODELS 20C150, 20C151

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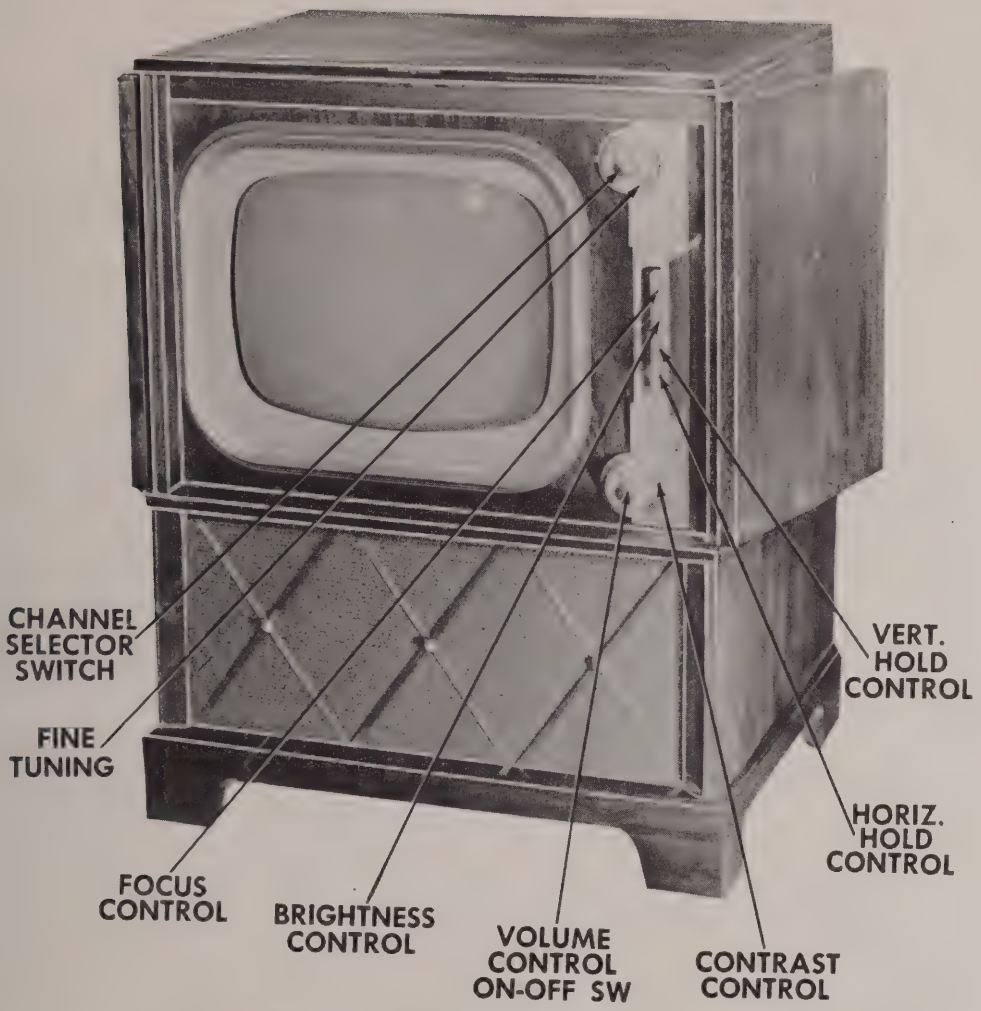
DATE 12-51 SET 153 FOLDER 6

GENERAL ELECTRIC MODELS 20C150, 20C151



GENERAL ELECTRIC MODELS 20C150, 20C151

GENERAL ELECTRIC MODEL 20C150

TRADE NAME	General Electric Models 20C150, 20C151
MANUFACTURER	General Electric Co., Electronics Dept., Electronics Park, Syracuse, N. Y.
TYPE SET	Television Receiver
TUBES	Twenty Eight
POWER SUPPLY	110-120 Volts AC-60 Cycle — RATING 2.6 Amp. at 117 Volts AC
TUNING RANGE—CHANNELS	2 thru 13

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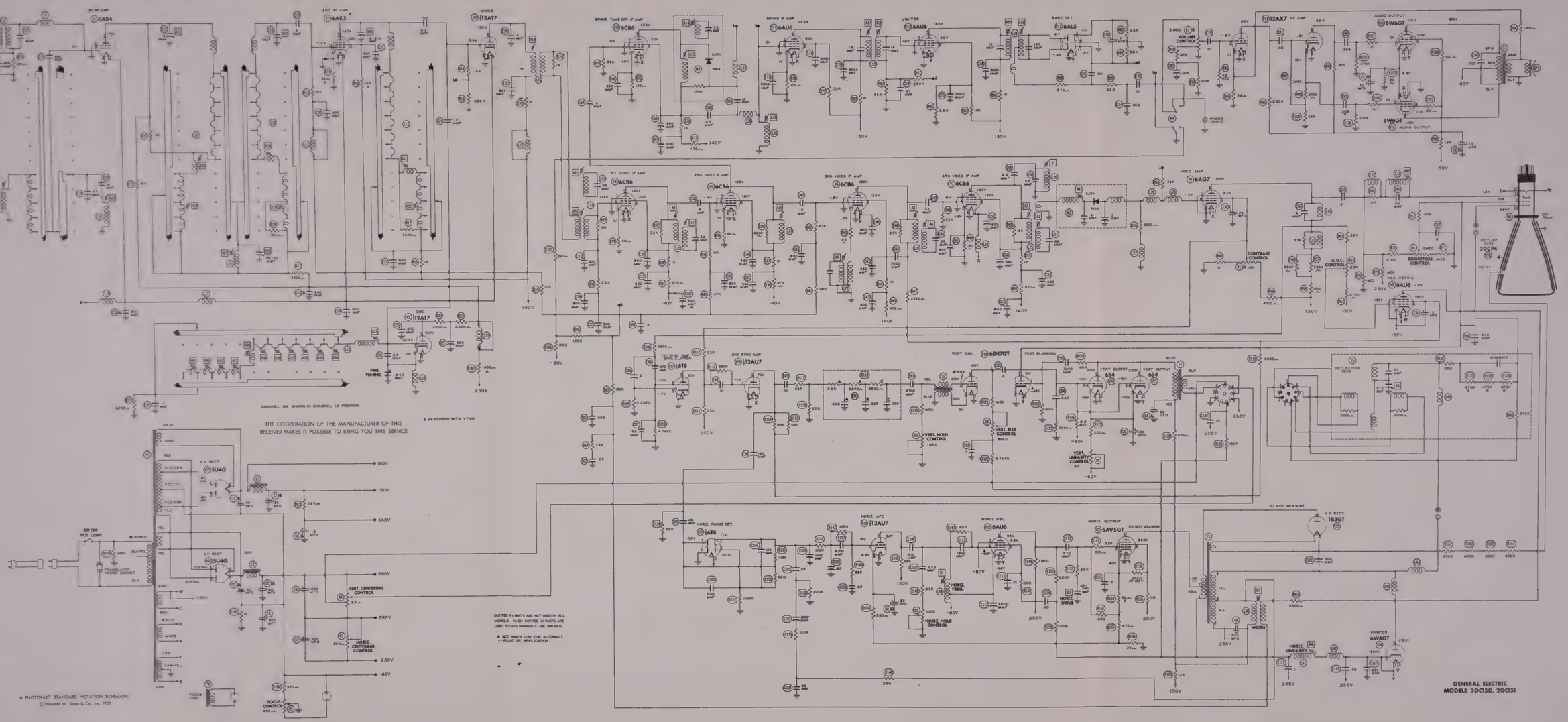

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

DOTTED P-1 PARTS ARE NOT USED IN ALL MODELS. WHEN DOTTED IN PARTS ARE USED PO-NTS MARKED P ARE BROKEN.

⊕ SEE PARTS LIST FOR ALTERNATE P-VALUE OR APPLICATION

Δ MEASURED WITH VTVM

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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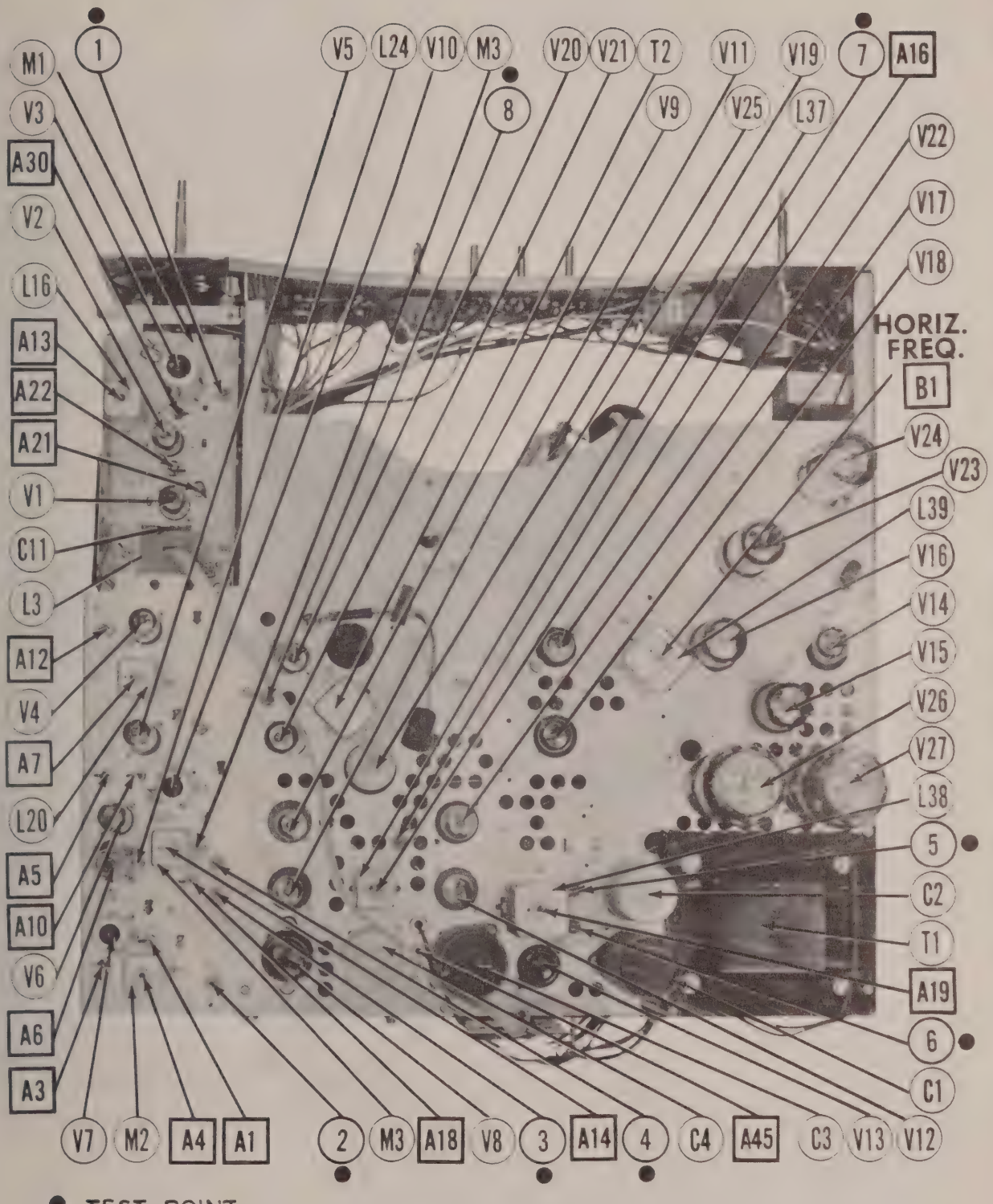
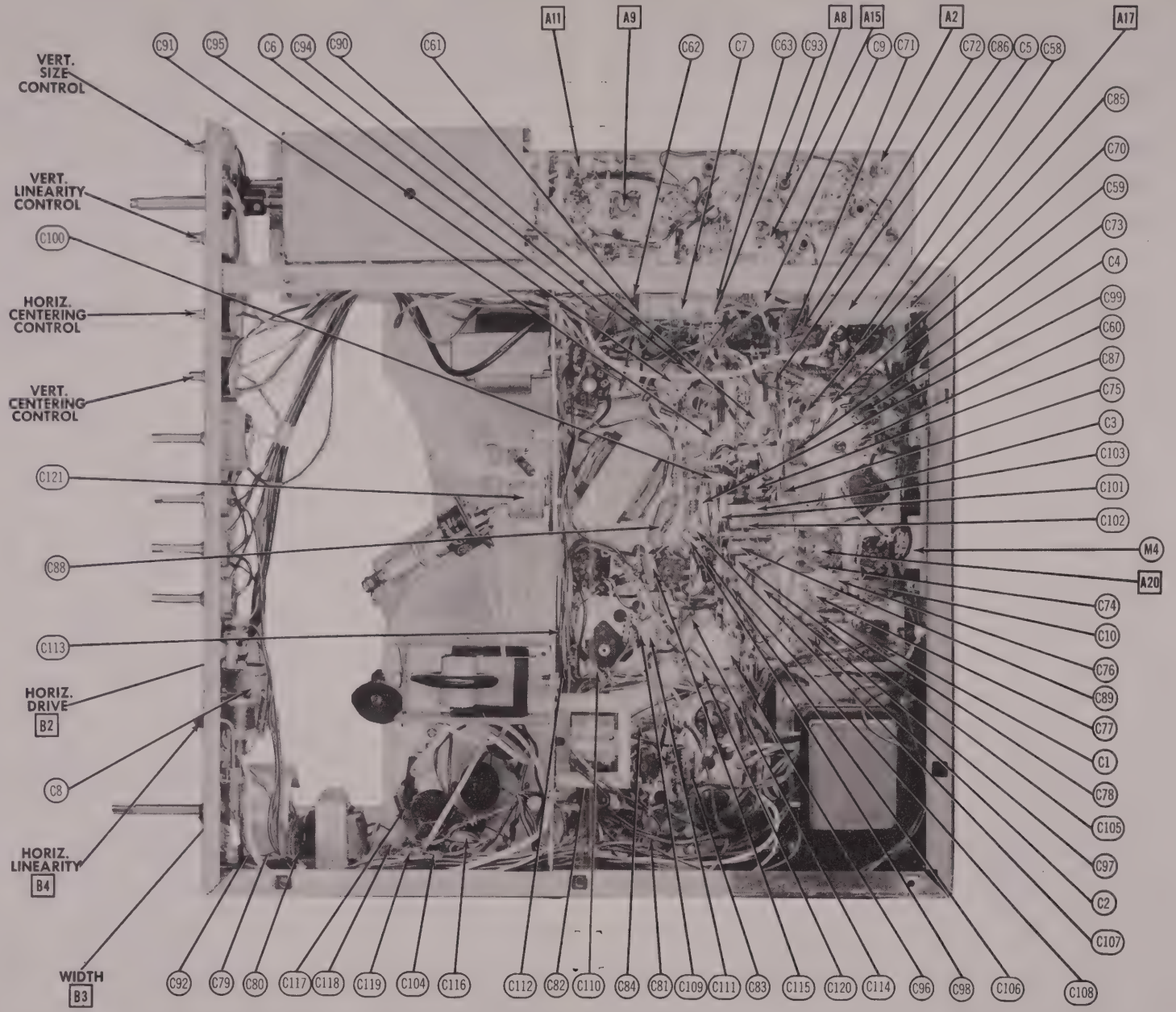
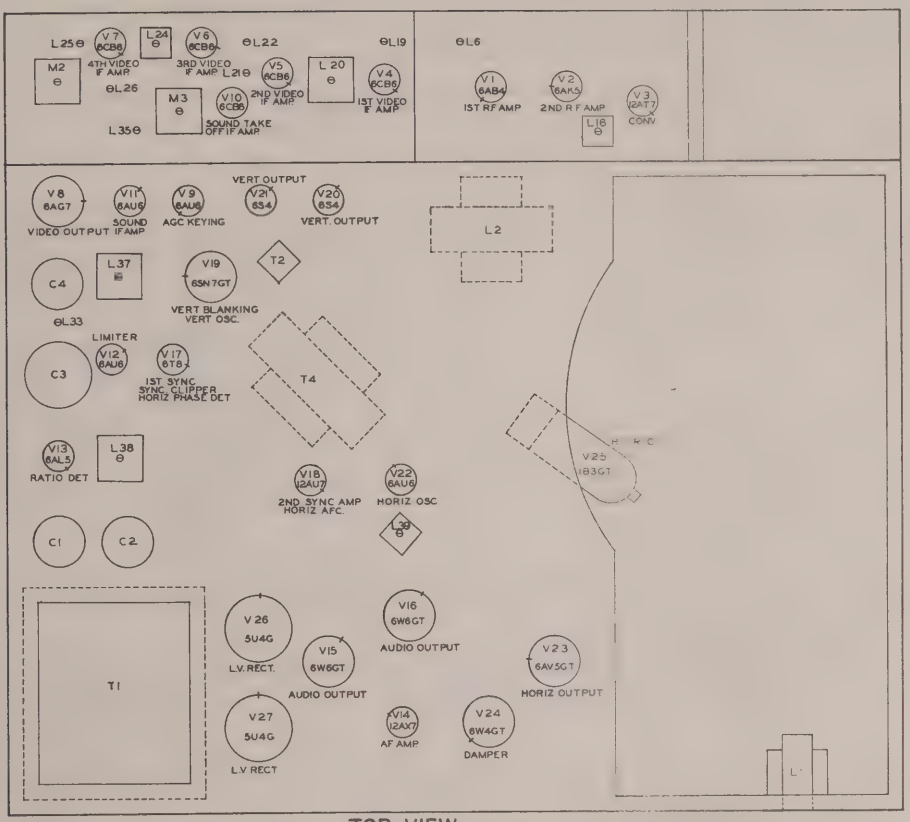
MODELS 20C150, 20C151



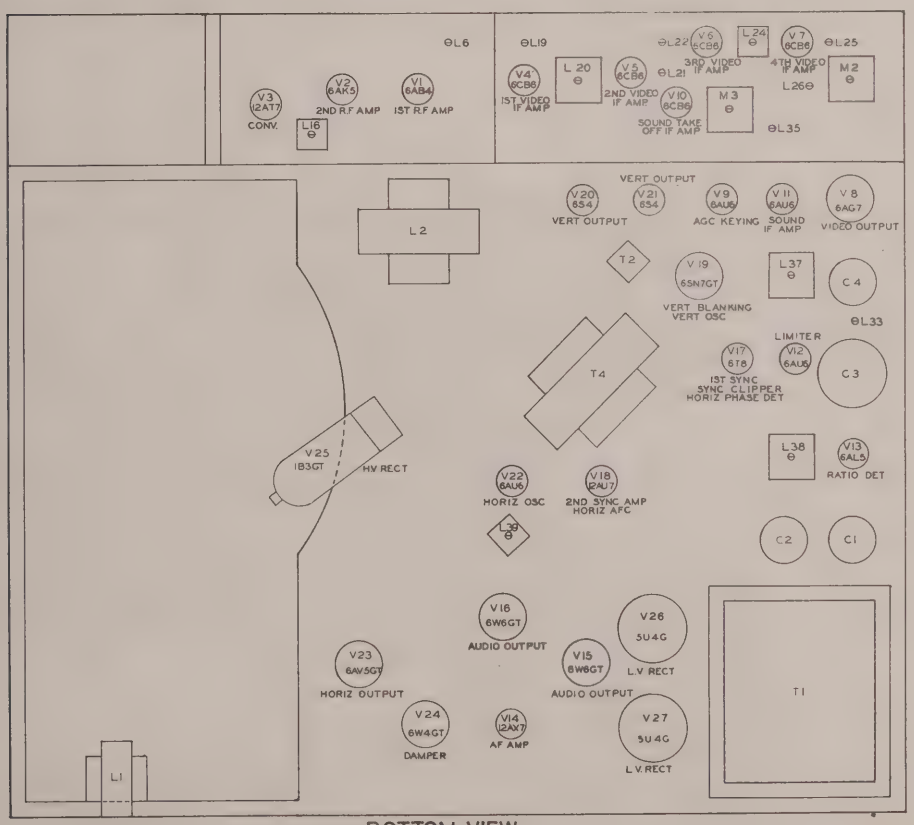
CHASSIS TOP VIEW



CHASSIS BOTTOM VIEW-CAPACITOR AND ALIGNMENT IDENTIFICATION



TOP VIEW



BOTTOM VIEW

TUBE PLACEMENT CHART

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Do not operate this receiver without the focus coil and deflection yoke plugs connected.
The high voltage shock hazard may be eliminated by removing the horizontal oscillator tube, (V22), from its socket.

VIDEO IF ALIGNMENT

The video IF bottom shield must be in place before alignment is attempted.
To make connection to the grids of the various tubes, bend a hook on the end of one lead of a 100MMF mica capacitor. The hook is slipped over pin 1 of the tube and the tube replaced. The sweep generator is connected to the free end of the capacitor. Take care to prevent the hooked end of the capacitor shorting against the chassis.
During step 4, a 5 microhenry choke must be connected in series with the 100MMF capacitor to prevent an erroneous tilt in the response curve.
Connect the negative lead of a 3 volt battery to test point # 8, connect the positive lead to chassis.
Set the tuner on a channel which causes no spurious interference with the response curve. To check for interference turn the fine tuning control, if the response curve changes switch to another channel.
Connect the synchronized sweep voltage from the signal generator to the horizontal input of the osciloscope for horizontal deflection.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	100MMF.	High side to pin 1, (Grid), of 6CB6, (V7). Low side to chassis.	44MC (10MC SWP)	39.75MC 41.25MC 42MC 45.75MC	See instructions above	Vert. Amp. to test Point # 2. Low side to chassis.	A1, A2, A3, A4	Adjust A1 for MINIMUM marker indication at the 39.75MC point on response curve. Adjust A2 for MINIMUM 41.25MC marker. Adjust A3 and A4 to place 42MC marker and 45.75MC marker as shown in figure 1.
2.	"	High side to pin 1, (Grid), of 6CB6, (V4). Low side to chassis.	"	39.75MC 41.25MC 47.25MC	"	"	A5, A6, A7	Adjust A5 for MINIMUM marker indication at the 39.75MC point on response curve. Adjust A6 for MINIMUM 41.25MC marker and A7 for MINIMUM 47.25MC marker.
3.	"	"	"	42MC 45MC 45.75MC	"	"	A8, A9, A10	Adjust A8 to place 42MC marker as shown in figure 2. Adjust A9 to place 45.75MC marker and A10 to adjust the tilt of the response curve
4.	100MMF. and 5 micro-henry choke in series.	High side thru dummy to test point # 1. Low side to chassis.	"	39.75MC 41.25MC 42MC 45MC 45.75MC 47.25MC	"	"	A11, A12, A13	Adjust A11 for MINIMUM marker indication at the 47.25MC point on response curve. Adjust A12 and A13 for maximum amplitude of response with markers as shown in figure 3.

SOUND TAKEOFF IF AMPLIFIER ALIGNMENT

Connect the synchronized sweep voltage from the signal generator to the horizontal input of the oscilloscope for horizontal deflection.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
5.	100MMF. and 5 micro-henry choke in series.	High side thru dummy to test point # 1. Low side to chassis.	44MC (10MC SWP)	41.25MC 45.75MC 47.25MC	See instructions above video IF alignment.	Vert. Amp. thru 10KΩ to test point # 4. Low side to chassis.	A14, A15	Adjust A14 for MINIMUM marker indication at the 47.25MC point on response curve. Adjust A15 for 7 to 1 amplitude ratio of markers as shown in figure 4. The response curve may vary considerably from that shown, however the important point is the 7 to 1 ratio between the marker amplitudes.

SOUND IF ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
6.	100MMF.	High side to test point # 3. Low side to chassis.	4.5MC (2MC SWP)	4.5MC	Any channel not used locally	Vert. Amp. to test point # 7. Low side to chassis.	A16, A17	Adjust for maximum amplitude and symmetry as per figure 5.
7.	100MMF. and 15KΩ in series	High side thru dummy to test point # 4. Low side to chassis.	"	"	"	"	A18	"
8.	"	"	"	"	"	Vert. Amp. to test point # 5. Low side to chassis.	A19, A20	Adjust A19 so 4.5MC occurs at center of "S" curve as per figure 6. Adjust A20 for maximum amplitude and straightness of diagonal line.

RF ALIGNMENT

RF alignment is performed in 2 operations. In the first operation the cathode and plate circuits of the first RF amp., and the grid circuit of the second RF amp are aligned. During this operation B+ voltages are removed from V2 and both sections of V3. The grid circuit of V2 is used as a detector to rectify the signal.
In the second operation the plate circuit of the second RF amplifier is aligned. During this operation B+ voltage is reconnected to V2 and the converter section of V3. The oscillator section of V3 is left disabled. See figure 8 for B+ connection terminal strip.
Connect the synchronized sweep voltage from the signal generator to the horizontal input of the oscilloscope for horizontal deflection.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
9.	See Fig. 7	Across antenna terminals	213MC (10MC SWP)	211.25MC 215.75MC	13	Vert. Amp. to AGC terminal on tuner terminal strip, (fig. 8). Low side to chassis.	A21, A22, A23	Disconnect B+ from second RF amp. (V2), and converter section of (V3). Disconnect B+ from oscillator section of (V3). Disconnect AGC buss from V2 and connect a 470KΩ resistor between AGC terminal and tuner chassis. (see fig. 8). Adjust A21 and A22 to place markers as shown in figure 9. Adjust A23 for proper band width. There are two points of proper band width on A23. The correct one gives a slightly wider response on channel 12.
10.	"	"	207MC (10MC SWP)	205.25MC 209.75MC	12	"		Check for response curve within the limits of figures 10A and 10B. If necessary make compromise adjustment of A21 and A22 to bring channels 13 thru 7 within the limits of fig. 10.
			201MC (10MC SWP)	199.25MC 203.75MC	11			
			195MC (10MC SWP)	193.25MC 197.75MC	10			
			189MC (10MC SWP)	187.25MC 191.75MC	9			
			183MC (10MC SWP)	181.25MC 185.75MC	8			
			177MC (10MC SWP)	175.25MC 179.75MC	7			
11.	"	"	85MC (10MC SWP)	83.25MC 87.75MC	6	"	A24, A25, A26, A27	Adjust A24, A25 and A26 for proper marker placement as shown in figure 9. Adjust A27 for proper band width.
12.	"	"	79MC (10MC SWP)	77.25MC 81.75MC	5			Check for response curve within the limits of figures 10A and 10B. If necessary make compromise adjustment of A25, and A26 to bring channels 6, 5, and 4 within the limits of fig. 10
			69MC (10MC SWP)	67.25MC 71.75MC	4			

ALIGNMENT INSTRUCTIONS (CONT.)

13.	"	"	63MC (10MC SWP)	61.25MC 65.75MC	3	"	A28, A29	Adjust for response curve similar to figure 9.
14.	"	"	57MC (10MC SWP)	55.25MC 59.75MC	2	"		Check for response curve similar to figure 9. If necessary make compromise adjustments of A28 and A29 to obtain best response on channels 3 and 2.
15.	"	"	213MC (10MC SWP)	211.25MC 215.75MC	13	Vert. Amp. to test point # 1. Low side to chassis.	A30	Reconnect B+ to second RF amp. and converter but do not reconnect osc. B+. Remove the 470KΩ resistor and reconnect the AGC buss, and connect 3 volt bias as during video IF alignment. Adjust A30 for flattopped response similar to figure 11.
16.	"	"	207MC (10MC SWP)	205.25MC 209.75MC	12	"		Check for response curve within the limits of figures 10A and 10B. If necessary make compromise adjustment of A30 to bring channels 12 thru 7 within the limits of fig. 10.
			201MC (10MC SWP)	199.25MC 203.57MC	11			
			195MC (10MC SWP)	193.25MC 197.75MC	10			
			189MC (10MC SWP)	187.25MC 191.75MC	9			
			183MC (10MC SWP)	181.25MC 185.75MC	8			
			177MC (10MC SWP)	175.25MC 179.75MC	7			
17.	"	"	85MC (10MC SWP)	83.25MC 87.75MC	6	"	A31	Adjust for flattopped response similar to figure 11.
18.	"	"	79MC (10MC SWP)	77.25MC 81.75MC	5	"		Check for response curve within the limits of figure 10A and 10B. If necessary make compromise adjustment of A31 to bring channels 6, 5, and 4 within the limits of figure 10.
			69MC (10MC SWP)	67.25MC 71.75MC	4			
19.	"	"	63MC (10MC SWP)	61.25MC 65.75MC	3	"	A32	Adjust for flattopped response similar to fig. 11.
20.	"	"	57MC (10MC SWP)	55.25MC 59.75MC	2	"		Check for response similar to figure 11. If necessary make compromise adjustment of A32 to obtain best response on channels 3 and 2.

OSCILLATOR ALIGNMENT

Reconnect the B+ to the oscillator section of V3.
Leave the 3 volt bias connected.
Turn the fine tuning control counter-clockwise to the stop, and then one half turn clockwise.
Connect the synchronized sweep voltage from the signal generator to the horizontal input of the oscilloscope for horizontal deflection.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
21.	See fig. 7	Across antenna terminals	213MC (10MC SWP)	211.25MC	13	Vert. Amp. to test point # 2. Low side to chassis.	A33	Adjust to place video marker at 50% on high frequency slope of response curve as per figure 12.
			207MC (10MC SWP)	205.25MC	12		A34	
			201MC (10MC SWP)	199.25MC	11		A35	
			195MC (10MC SWP)	193.25MC	10		A36	
			189MC (10MC SWP)	187.25MC	9		A37	
			183MC (10MC SWP)	181.25MC	8		A38	
			177MC (10MC SWP)	175.25MC	7		A39	
			85MC (10MC SWP)	83.25MC	6		A40	
			79MC (10MC SWP)	77.25MC	5		A41	
			69MC (10MC SWP)	67.25MC	4		A42	
			63MC (10MC SWP)	61.25MC	3		A43	
			57MC (10MC SWP)	55.25MC	2		A44	

4.5MC TRAP ADJUSTMENT

If 4.5MC beat interference appears in the picture, (grain appearence in horizontal lines), adjust the 4.5MC trap, (A45), minimize the interference.

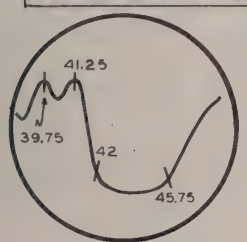


FIG. 1

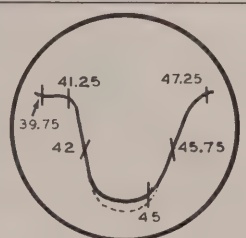


FIG. 2

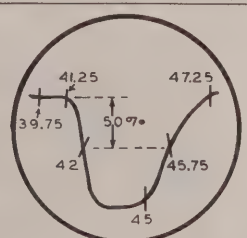


FIG. 3

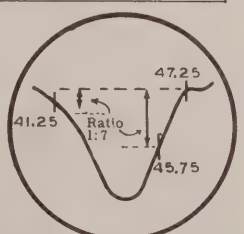


FIG. 4

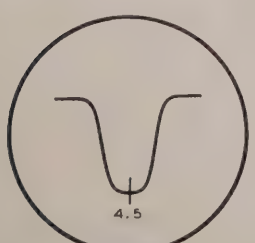


FIG. 5

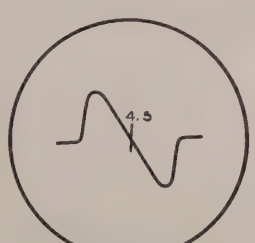
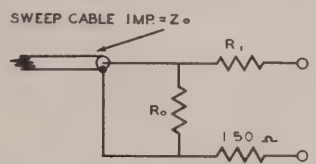


FIG. 6



Zo	Ro	R1
50Ω	56Ω	120Ω
72Ω	82Ω	110Ω
92Ω	110Ω	100Ω

FIG. 7

ALIGNMENT INSTRUCTIONS (CONT.)

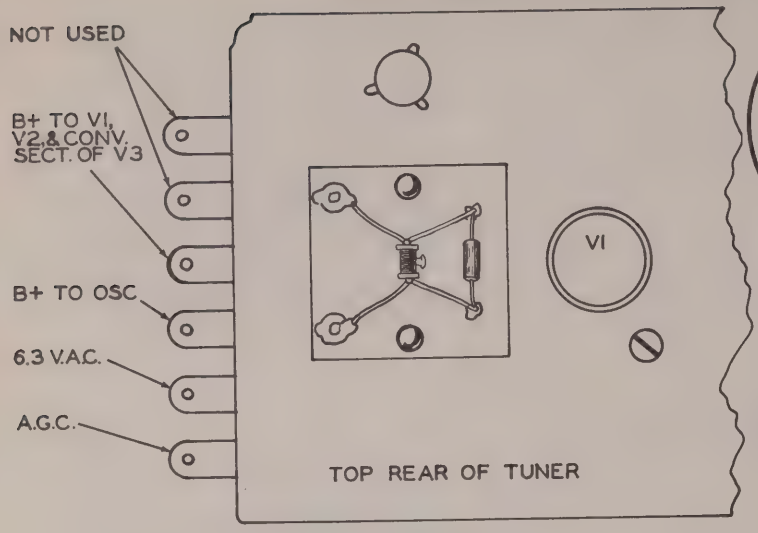


FIGURE 8

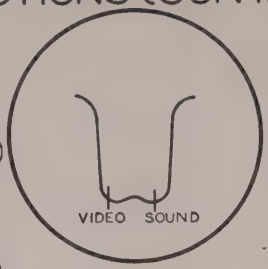


FIG. 9

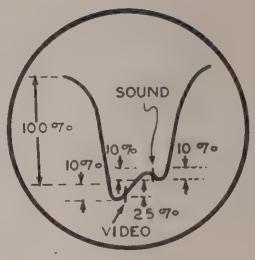


FIG. 10A

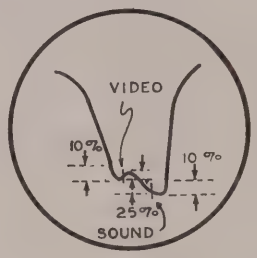


FIG. 10B

FIG. 11

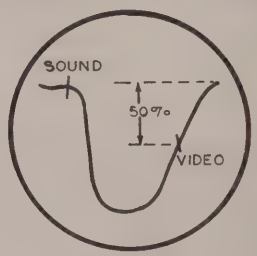
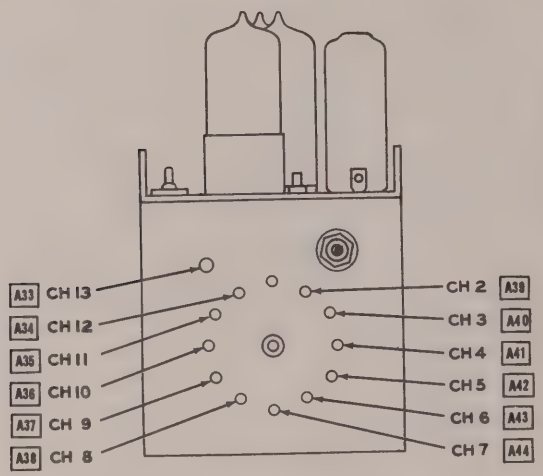
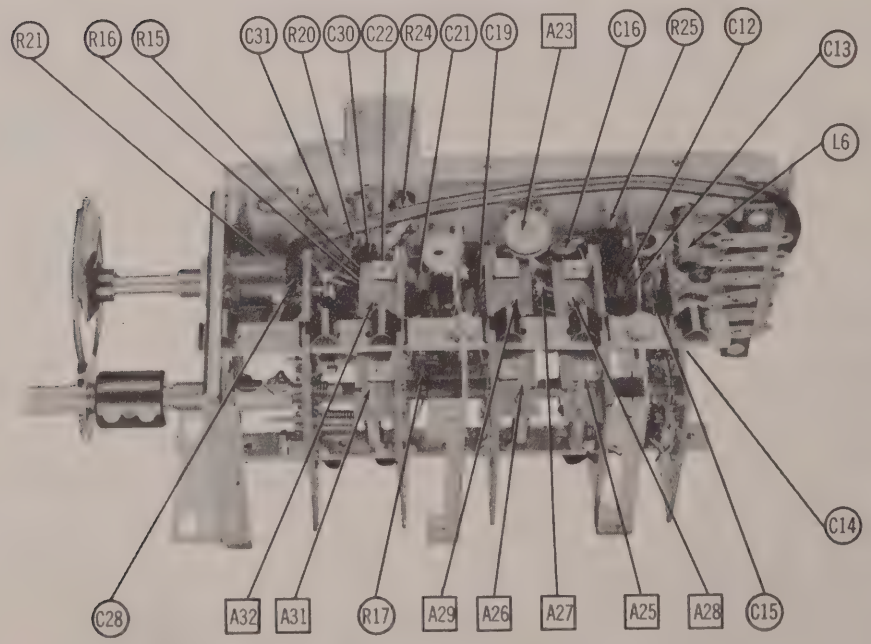


FIG. 12



OSCILLATOR ADJUSTMENTS



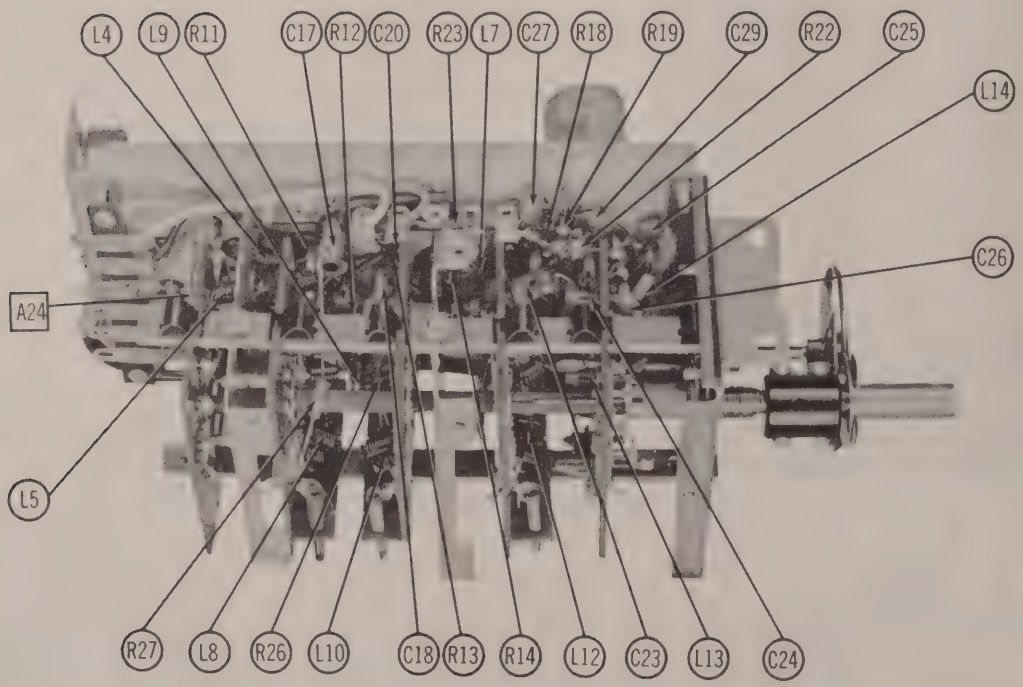
RF TUNER - RIGHT SIDE

RESISTANCE MEASUREMENTS

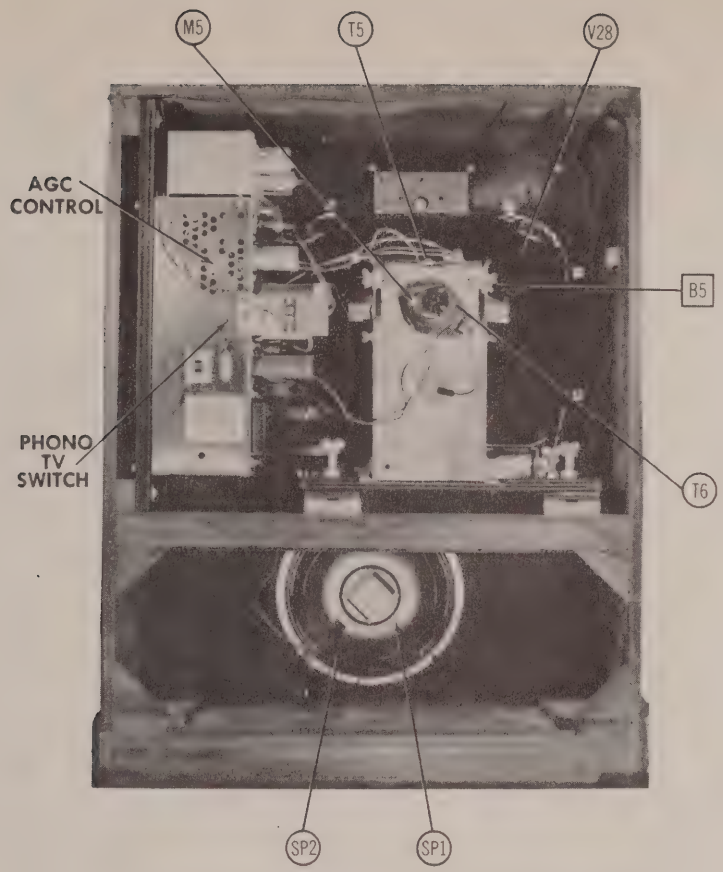
RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6AB4	†7.1KΩ	0Ω	.2Ω	0Ω	†2KΩ	0Ω	120Ω		
V 2	6AK5	170KΩ	0Ω	0Ω	.3Ω	¶1.4KΩ	¶12KΩ	0Ω		
V 3	12AT7	†7.5KΩ	8.2KΩ	.2Ω	0Ω	0Ω	¶1.3KΩ	230KΩ	0Ω	.3Ω
V 4	6CB6	170KΩ	68Ω	.1Ω	0Ω	¶1.9KΩ	¶1.9KΩ	0Ω		
V 5	6CB6	215KΩ	68Ω	.1Ω	0Ω	¶1.9KΩ	¶1.9KΩ	0Ω		
V 6	6CB6	300KΩ	68Ω	.1Ω	0Ω	†9KΩ	¶1.9KΩ	0Ω		
V 7	6CB6	33KΩ	150Ω	.1Ω	0Ω	¶1.9KΩ	¶1.9KΩ	0Ω		
V 8	6AG7	0Ω	.1Ω	0Ω	3.3KΩ	0Ω	¶4KΩ	0Ω	¶3.8KΩ	
V 9	6AU6	¶12KΩ	¶240Ω	■0Ω	■.3Ω	300KΩ	†7KΩ	¶240Ω		
V 10	6CB6	56KΩ	150Ω	.1Ω	0Ω	¶1.9KΩ	¶1.9KΩ	0Ω		
V 11	6AU6	2.1Ω	0Ω	0Ω	.1Ω	¶1.5KΩ	¶33KΩ	150Ω		
V 12	6AU6	56KΩ	0Ω	.1Ω	0Ω	¶1.5KΩ	¶7.8KΩ	0Ω		
V 13	6AL5	Inf.	Inf.	.1Ω	0Ω	22KΩ	Inf.	22KΩ		
V 14	12AX7	¶235KΩ	6.8Meg.	68Ω	0Ω	0Ω	¶50KΩ	1Meg.	35KΩ	.1Ω
V 15	6W6GT	0Ω	0Ω	¶100Ω	¶15KΩ	470KΩ	470KΩ	.1Ω	120Ω	
V 16	6W6GT	Inf.	1Ω	¶100Ω	¶15KΩ	470Ω	470Ω	0Ω	120Ω	
V 17	6T8	1Meg.	1.1Meg.	2.1Meg	0Ω	.1Ω	2.2Meg.	0Ω	4.7Meg.	¶20KΩ
V 18	12AU7	†28KΩ	680KΩ	0Ω	0Ω	0	¶68KΩ	3.2Meg.	260Ω	.1Ω
V 19	6SN7GT	1Meg.	†700KΩ	0Ω	1.8Meg.	#5Meg.	200Ω	0Ω	.1Ω	
V 20	6S4	Inf.	500Ω	2.2Meg.	0Ω	.1Ω	2.2Meg.	Inf.	†1.4KΩ	†1.4KΩ
V 21	6S4	Inf.	500Ω	2.2Meg.	0Ω	.1Ω	2.2Meg.	Inf.	Inf.	†1.4KΩ
V 22	6AU6	23KΩ	260Ω	0Ω	.1Ω	†1Meg.	†100KΩ	320Ω		
V 23	6AV5GT	†1Meg.	0Ω	600Ω	Inf.	#60Ω	Inf.	.1Ω	†3KΩ	
V 24	6W4GT	Inf.	Inf.	900KΩ	Inf.	†200Ω	Inf.	#.1Ω	#0Ω	
V 25	1B3GT	PINS 1-8 HAVE INF. RESISTANCE								TOP CAP #470Ω
V 26	5U4G	Inf.	18KΩ	Inf.	260Ω	Inf.	260Ω	Inf.	18KΩ	
V 27	5U4G	Inf.	9KΩ	Inf.	260Ω	Inf.	260Ω	Inf.	9KΩ	
V 28	20CP4	■0Ω	PIN 10 †700KΩ	PIN 11 #420KΩ	PIN 12 †420KΩ	■.3Ω				

ALL CONTROLS SET FOR NORMAL OPERATION
†MEASURED FROM PIN 2 OF V26
¶MEASURED FROM PIN 2 OF V27
#MEASURED FROM PIN 3 OF V24
■ MEASURED FROM 150 VDC LINE



RF TUNER-LEFT SIDE



CABINET-REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Turn the set on and tune in a TV station, preferably a test pattern.

Turn the horizontal hold control to the mid-position of its range.

Adjust the horizontal frequency slug, (B1), until the picture synchronizes horizontally.

Adjust the horizontal drive trimmer, (B2), for maximum raster width without crowding or foldover.

Adjust the width slug, (B3), until the picture is slightly wider than necessary to fill the mask horizontally.

Adjust the horizontal linearity slug, (B4) until the picture is symmetrical from left to right. Since B3 & B4 are interacting it may be necessary to adjust them alternately for best results.

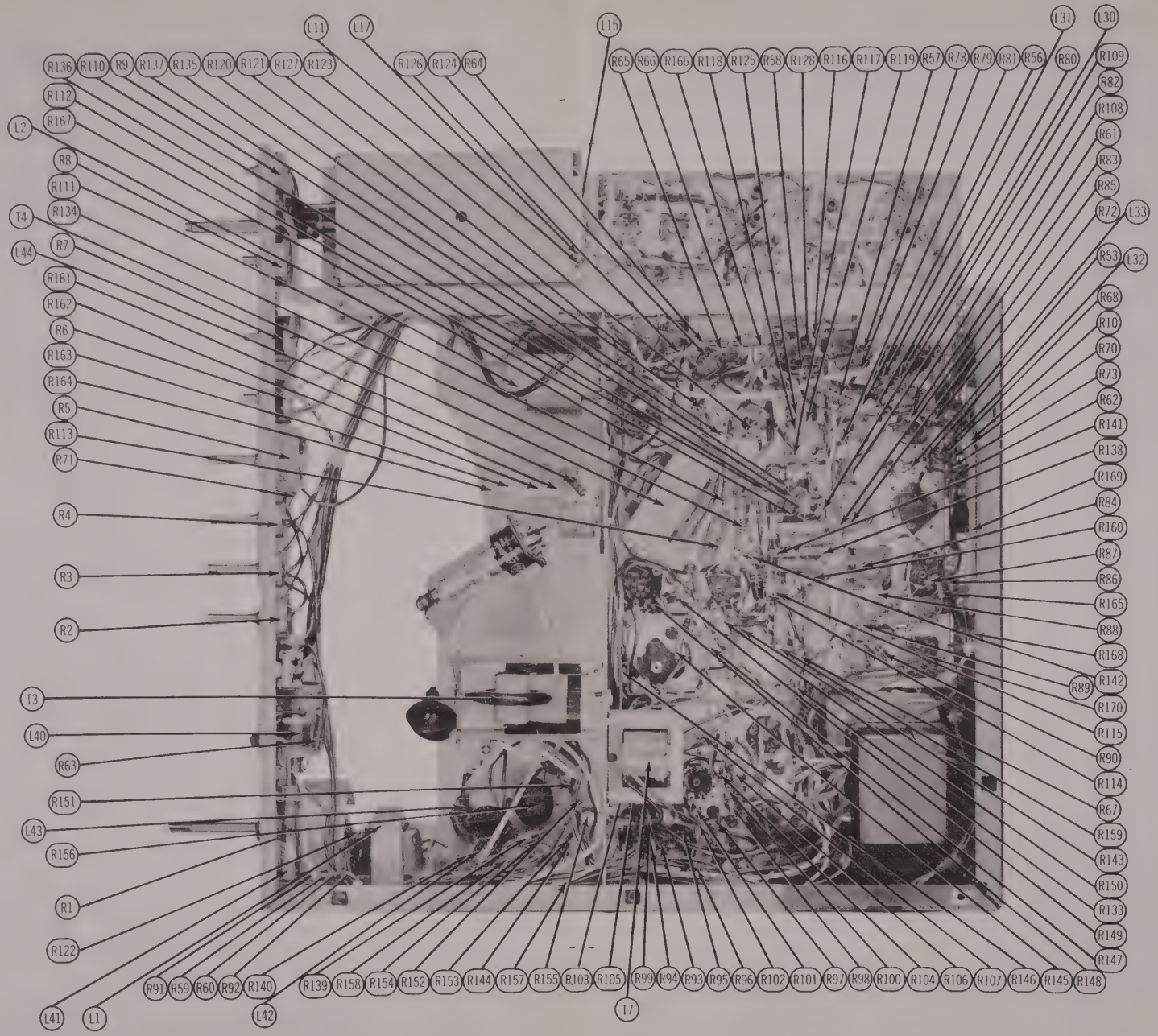
The deflection yoke trimmer, (B5), is used to compensate for individual differences in distributed capacity between the halves of the horizontal deflection yoke. This capacity unbalance may cause the horizontal sweep lines to "ripple"; that is, the left edge of the raster may be rippled instead of straight and even. In the event of such ripples, adjustment of B5 should eliminate them.

DISASSEMBLY INSTRUCTIONS

1. Remove eight push-on type control knobs.
2. Disconnect built-in antenna.
3. Remove twelve wood screws from rear cover. Remove rear cover.
4. Disconnect speaker.
5. Disconnect picture tube socket.
6. Disconnect yoke plug.
7. Disconnect focus coil plug
8. Remove three metal screws securing chassis to cabinet. Remove chassis.
9. Remove four 11/32 hex nuts from speaker. Remove speaker.

NOTE: FOR PICTURE TUBE REMOVAL IT IS NECESSARY TO REMOVE:

1. Rear cover.
2. Four wing bolts and springs from picture tube mounting board to cabinet.
3. Remove tube.



CHASSIS BOTTOM VIEW-RESISTOR AND INDUCTOR IDENTIFICATION

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	NOTES
		General Elect. PART No.	STANDARD REPLACEMENT		
V1	1st. RF Amplifier	6AB4	6AB4	5CE	
V2A	2nd. RF Amplifier	6AK5	6AK5	7BD	
B	2nd. RF Amplifier	6CB6	6CB6	7CM	
V3	Converter	12AT7	12AT7	9A	
V4	1st. Video IF Amp.	6CB6	6CB6	7CM	
V5	2nd. Video IF Amp.	6CB6	6CB6	7CM	
V6	3rd. Video IF Amp.	6CB6	6CB6	7CM	
V7	4th. Video IF Amp.	6CB6	6CB6	7CM	
V8	Video Amplifier	6AG7	6AG7	8Y	
V9	AGC Keying	6AU6	6AU6	7BK	
V10	Sound Take-off IF Amplifier	6CB6	6CB6	7CM	
V11	Sound IF Amplifier	6AU6	6AU6	7BK	
V12	Limiter	6AU6	6AU6	7BK	
V13	Ratio Detector	6AL5	6A L5	6BT	
V14	AF Amplifier	12AX7	12AX7	9A	
V15	Audio Output	6W6GT	6W6GT	7AC	
V16	Audio Output	6W6GT	6W6GT	7AC	
V17	1st. Sync. Amp. Sync. Clipper Horiz. Phase Det.	6T8	6T8	9E	
V18	2nd. Sunc. Amp. Horizontal AFC	12 AU7	12AU7	9A	
V19	Vert. Blanking Vert. Oscillator	6SN7GT	6SN7GT	8BD	
V20	Vert. Output	6S4	6S4	9AC	
V21	Vert. Output	6S4	6S4	9AC	
V22	Horiz. Oscillator	6AU6	6AU6	7BK	
V23	Horiz. Output	6AV5GT	6AV5GT	6CK	
V24	Damper	6W4GT	6W4GT	4CG	
V25	HV Rectifier	1B3GT	1B3GT	3C	
V26	LV Rectifier	5U4G	5U4G	5T	
V27	LV Rectifier	5U4G	5U4G	6T	

CATHODE-RAY TUBE

ITEM No.	REPLACEMENT DATA			RTMA BASE TYPE	NOTES
	General Elect. PART No.	SYLVANIA PART No.	THOMAS PART No.		
V28	20CP4	20CP4	20CP4	12D	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA						IDENTIFICATION CODES AND INSTALLATION NOTES
	CAP.	VOLT	General Elect. PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	
C1A	30	450	RCE-124	AFH 2-61		UPT33345		TVL-2770	● Filter
B	30	450							▲ Filter
C2A	40	450	RCE-122			UP43245		TVL-4718	● Filter
B	30	350				BR502A		TVA-1206	■ Filter
C	15	350							▲ Decoupling
D	30	25							Audio Output Cathode
C3	500	125	RCE-125			UPE202015			● Bias Filter
C4A	30	450	RCE-121			UPT3345C		TVL-4742	● Vert. Amp. Dec.
B	15	350				BR5022A			■ Decoupling
C	30	250							▲ Video Amp. Screen
D	25	25							Horizontal AFC Cathode
C5	100	150	RCE-123	PRS150/100		BR10015		TVA-1420	Vert. Output Cathode
C6	1000	6	RCE-106	PRS6/1000		BRH610		TVA-1104	Vert. Cent. Cont. Bypass
C7	500	15	RCE-126	PRS15/500		BRH155A		TVA-1162	Horiz. Cent. Cont. Bypass
C8	500	15	RCE-126	PRS15/500		BRH155A		TVA-1162	Horiz. Cent. Cont. Bypass
C9	5	150	RCE-056	PRS150/4		BR415		TVA-1402	AGC Filter
C10	1	50	RCE-090	PRS150/4		BBR1-50T		TVA-1300	Stabilizing Cap.
C11	1		RCN-001		TCZ-1		NP0K-010		Fixed Trimmer
C12	800		RCW-3037	BPD-0008	DD-801		801-001	5HK-D1	1st RF Amp. Cathode
C13	680		RCW-3045	SI680	D6-681		GP2K-681	5GA-T68	RF Coupling
C14	43								Fixed Trimmer
C15	5	500	UCG-1005	1469-000005	TCZ-5	5R5V5	NPOK-050	MS-55	Fixed Trimmer
C16A	800		RCN-027	BPD-2X001	DD-2-102		812-001	5HK-2D1	1st RF Amp. Fil.
B	800								RF Bypass
C17	1-5		RCY-065		829-6				Variable Trimmer
C18	1-5		RCY-065		829-6				Variable Trimmer
C19	5		RCW-3057	SI5			GP1K-050		RF Coupling
C20	800		RCW-3037	BPD-0008	DD-801		801-001	5HK-D1	AGCFilter
C21	680		RCW-3045	SI680	D6-681		GP2K-681	5GA-T68	2nd RF Amp. Screen
C22	680		RCW-3027	SI680	D6-681		GP2K-681	5GA-T68	2nd RF Amp. Plate
C23	3.3		RCN-028	SI3.3NPO	TCZ-3.3		NPOK-3R3		RF Coupling
C24	1.5		RCW-3046				N750K-1R5		Osc. Coupling
C25	800		RCW-3037	BPD-0008	DD-801		801-001	5HK-D1	Osc. Plate
C26	3.3		RCW-3047	SI3.3NPO	TCZ-3.3		NPOK-3R3		Osc. Feedback
C27	800		RCW-3037	BPD-0008	DD-801		801-001	5HK-D1	RF Bypass
C28	12	500	UCG-1006		TCZ-12		NPOK-120		Fixed Trimmer
C29	800		RCW-3037	BPD-0008	DD-801		801-001	5HK-D1	Osc. Fil.
C30	5	500	UCG-1005	1469-000005	TCZ-5	5R5V5	NPOK-050	MS-55	Fixed Trimmer
C31	800		RCW-3037	BPD-0008	DD-801		801-001	5HK-D1	Conv. Plate Dec.
C32	56	500	UCG-2022		TCZ-56		NPO-333-560		Fixed Trimmer
C33	800		RCW-3037	BPD-0008	DD-801	1W5T8	801-001	5HK-D1	AGC Filter
C34	800		RCW-3037	BPD-0008	DD-801	1W5T8	801-001	5HK-D1	AGCFilter
C35	800		RCW-3037	BPD-0008	DD-801	1W5T8	801-001	5HK-D1	AGCFilter
C36	680	500	UCU-1048	1479-0007	D6-681	1W5T7	GP2K-681	1FM-37	1st Video IF Dec.
C37	800		RCW-3037	BPD-0008	DD-801	1W5T8	801-001	5HK-D1	RF Bypass
C38	9		RCW-3044				NPOK-090		IF Coupling
C39	800		RCW-3037	BPD-0008	DD-801	1W5T8	801-001	5HK-D1	AGC Filter
C40	680	500	UCU-1048	1479-0007	D6-681	1W5T7	GP2K-681	1FM-37	2nd Video IF Dec.
C41	800		RCW-3037	BPD-0008	DD-801	1W5T8	801-001	5HK-D1	RF Bypass
C42	15		RCW-3040		TCZ-15		NPOK-150	5TCC-Q15	IF Coupling
C43	800		RCW-3037	BPD-0008	DD-801	1W5T8	801-001	5HK-D1	AGC Filter
C44	5000		RCW-3014	BPD-005	DD-502	1D5D5	811-005	5HK-D5	3rd Video IF Dec.
C45	680	500	UCU-1048	1479-0007	D6-681	1W5T7	GP2K-681	1FM-37	3rd Video IF Dec.

PARTS LIST AND DESCRIPTIONS (Continued)

CAPACITORS (CONT.)

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA General Elect. PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C48	300		RCW-3037	BPD-0006	DD-801	1W5T8	801-001	5HK-D1	3rd Video IF Filter
C47	300		RCW-3037	BPD-0006	DD-801	1W5T8	801-001	5HK-D1	RF Bypass
C48	56	500	UCG-2023		TCZ-56		NPOL-330		IF Coupling
C49	33		RCW-3041	8133NPO	TCZ-33		NPOL-330	STCC-Q33	IF Coupling
C50	680	500	UCU-1048	1479-0007	D6-681	1W5T7	GP2K-681	1FM-37	4th Video IF Dec.
C51	300		RCW-3037	BPD-0006	DD-801	1W5T8	801-001	5HK-D1	4th Video IF Cathode
C52	300		RCW-3037	BPD-0006	DD-801	1W5T8	801-001	5HK-D1	4th Video IF Fil.
C53	300		RCW-3037	BPD-0006	DD-801	1W5T8	801-001	5HK-D1	RF Bypass
C54	300		RCW-3037	BPD-0006	DD-801	1W5T8	801-001	5HK-D1	RF Bypass
C55	3.3		RCW-3019	SZ2.2NPO	TCZ-2.2	1W5T8	NPOK-2R2	5HK-D1	IF Coupling
C56	62	500	UCG-2023		TCZ-62		NPO-333-620	MS-46	Fixed Trimmer
C57	68	500	UCG-2034	1469-00007	TCZ-68	5R5Q7	NPO-333-680	MS-47	Fixed Trimmer
C58	6		RCW-3042				NPOK-060		Fixed Trimmer
C59	.2	400	UCC-050	684-2		GT4P2			Video Coupling
C60	110	500	UCG-2029		TCZ-110		NPO-333-111		Fixed Trimmer
C61	.003	600	UCC-036	P688-002	D6-202	PTE6D2	GP2-333-202	6TM-D2	AGC Filter
C62	.05	600	UCC-046	P688-05	DF-503	PTE-855		6TM-85	AGC Filter
C63	.2	200	UCC-050	684-2		GT4P2			AGC Filter
C64	9		RCW-3044				NPOK-090		Sound IF Coupling
C65	680	500	UCU-1048	1479-0007	D6-681	1W5T7	GP2K-681	1FH-37	1st Sound IF Dec.
C66	300		RCW-3037	BPD-0006	DD-801	1W5T8	801-001	5HK-D1	1st Sound IF Cathode
C67	300		RCW-3037	BPD-0006	DD-801	1W5T8	801-001	5HK-D1	RF Bypass
C68	43	500	UCG-2019		TCZ-43		NPOL-430		Sound IF Coupling
C69	10	500	UCG-3004	1469-00001	TCZ-10	5R5Q1	NPOK-100	MS-41	Sound IF Coupling
C70	5000		RCW-3014	BPD-005	DD-502	1D5D5	811-005	5HK-D5	2nd Sound IF Plate
C71	5000		RCW-3014	BPD-005	DD-502	1D5D5	811-005	5HK-D5	2nd Sound IF Screen
C72	5000		RCW-3014	BPD-005	DD-502	1D5D5	811-005	5HK-D5	2nd Sound IF Cathode
C73	47	500	UCU-1520	1469-00005	TCZ-47	5R5Q5	NPOL-479	MS-45	Limiter Grid Filter
C74	5000		RCW-3014	BPD-005	DD-502	1D5D5	811-005	5HK-D5	Limiter Plate
C75	5000		RCW-3014	BPD-005	DD-502	1D5D5	811-005	5HK-D5	Limiter Screen
C76	.001	200	UCC-035	P688-001	D6-102	PTE6D1	GP2L-102	6TM-D1	RF Bypass
C77	.003	200	UCC-036	P688-002	D6-202	PTE6D2	GP2-333-202	6TM-D2	De-Emphasis
C78	.01	200	UCC-040	P688-01	D6-103	PTE6S1	GP2-333-103	6TM-S1	Audio Coupling
C79	.01	200	UCC-040	P688-01	D6-103	PTE4S1	GP2-333-103	4TM-S1	Audio Coupling
C80	.005	200	UCC-039	P688-005	D6-502	PTE6D5	GP2-333-502	6TM-D5	Tone Comp.
C81	.03	600	UCC-041	P688-03	DF-203	PTE6S2		6TM-D2	Audio Coupling
C82	.006	600	RCC-002	P688-006	D6-602	PTE6D6	GP2-333-602	6TM-D6	Audio Coupling
C83	.006	600	RCC-063	P688-006	D6-602	PTE6D6	GP2-333-602	6TM-D6	Audio Coupling
C84	.005	1000	UCC-059	P1088-005		PTE18D5		MB-D5	Audio Output Plate
C85	.3	400	UCC-050	684-3		GT4P2			Sync. Coupling
C86	470	500	UCU-544	1468-0005	D6-471	5W5T5	GP2K-471	1FM-35	Sync. Coupling
C87	68	500	UCG-1534	1469-00007		5R5Q7		MS-47	Sync. Amp.Grid
C88	.01	600	UCC-040	P688-01	D6-103	PTE6S1	GP2-333-103	6TM-S1	Sync. Coupling
C89	.01	600	UCC-040	P688-01	D6-103	PTE6S1	GP2-333-103	6TM-S1	Vert. Sync. Coupling
C90A	.002			P688-002		PTE6D2	GP2-333-202		Vert. Integrator Net.
B	.006		♦REK-001	P688-005	♦PC-100	PTE6D5	GP2-333-502	♦101C1	Vert. Integrator Net.
C	.005			P688-005		PTE5D5	GP2-333-502		Vert. Integrator Net.
C91	4700	500	UCU-1068	1464-005		1DR5D5		MS-25	Vert. Osc. Grid Cap
C92	.1	600	UCC-048	P688-1	DF-104	PTE6P1		6TM-81	Vert. Osc. Decoupling
C93	.3	600	UCC-050	684-2		GT6P2			Vert. Sweep Coupling
C94	.047	600	RCN-041	P688-047	DF-503	PTE6S5		6TM-847	Vert. Discharge
C95	3900	500	UCU-1068	1464-004		1DR5D4			Vert. Sweep Coupling
C96	470	500	UCU-1546	1469-0005		5R5T5		MS-35	Vert. Blanking Plate
C97	.3	600	UCC-050	684-3		GT6P2			Integrator Net.
C98	180	500	UCU-1034	1469-0002		5R5T2		MS-32	Horiz. Sync. Coupling
C99	180	500	UCU-1034	1469-0002		5R5T2		MS-32	Horiz. Sync. Coupling
C100	1000	500	UCU-1052	1464-001		1R5D1		MS-21	Horiz. Sync. Coupling
C101	120	500	UCU-1030						Horiz. Feedback
C102	.05	300	UCC-045	P388-05	DF-503	PTE4S5		2TM-85	Horiz. Feedback
C103	1000	500	UCU-052	1468-001	D6-102	1W5D1	GP2L-102	1FM-21	Horiz. Feedback
C104	68	500	UCU-1534	1469-00007		5R5Q7		MS-47	Voltage Divider
C105	1000	500	UCU-1052	1464-001		1R5D1		MS-21	AFC Filter
C106	.015	200	RCN-042	P388-015					AFC Filter
C107	4700	500	UCU-068	1464-005	D6-472	1DR5D5	GP2-333-472	MS-25	AFC Filter
C108	.05	200	UCC-045	P388-05	DF-503	PTE4S5		2TM-85	AFC Filter
C109	470	500	UCU-1544	1468-0005	D6-471	5W5T5	GP2K-471	1FM-35	AFC Coupling
C110	220	500	UCU-1536	1469-00025		5R5T25			Horiz. Osc. Grid
C111	1800	500	UCU-1058						AFC Filter
C112	3900	500	UCU-1068	1464-004		1DR5D4			Fixed Trimmer
C113	.01	600	UCC-040	P688-01	D6-103	PTE6S1	GP2-333-103	6TM-81	Horizontal Osc. Screen
C114	.05	600	UCC-045	P688-05	DF-503	PTE6S5		6TM-85	Horizontal Osc. Decoupling
C115	470	500	UCU-1544	1468-0005	D6-470	5W5T5	GP2K-471	MS-35	Horizontal Sweep Coupling
C116	.5	400	UCC-052	484-5		GT4P5		4TM-P5	Horizontal Output Cathode
C117	330	500	RCU-303	1469-00035					Damper Cathode Bypass
C118	.05	600	UCC-045	P688-05	DF-503	PTE6S5		6TM-85	Damper Filter
C119	.1	600	UCC-048	P688-1	DF-104	PTE6P1		6TM-P1	Damper Filter
C120	.01	600	UCC-040	P688-01	D6-103	PTE6S1	GP2-333-103	6TM-81	Decoupling
C121	500	20000	RCN-023	HV20C	TV3-502				HV Filter
C122	300		RCW-3037	BPD-0006	DD-801		801-001	5HK-D1	RF Bypass *

* Not used in all Models
♦ Items C90A, C90B, C90C, R118A, R119B, R119C are combined in one unit.

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA General Elec PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	INSTALLATION NOTES
R1A	10KΩ	1	RRC-161				Contrast Control - Panel(Wirewound)
B	2Meg.	½					Volume Control &SW Tapped ⑥ 125K-Rear
R2A	100KΩ	½	RRC-160	Q11-128	AG-69-8	B-40	Horiz. Hold Control
B	Shaft		Not Req.	Not Req.	RS-2	Not Req.	Attach to R2A per instructions
R3A	1 Meg.	½	RRC-157	Q14-137	AG-61-8		Vertical Hold Contorol
B	Shaft		Not Req.	Not Req.	KS8-3		Attach to R3A per instructions
R4A	2 Meg.	½	RRC-158	Q11-139	AG-83-8	B-75	Brightness Control
B	Shaft		Not Req.	Not Req.	RS-2	Not Req.	Attach to R4A per instructions
R5	400Ω	25	RRW-065				Focus Control (Wirewound)
R6	20Ω	2	RRW-067	W-20X10	RTV-98	SVT-901	Vertical Centering Control(Wirewound)
R7	500Ω	2	RRW-066	W-500	43-500	VK-127	Horiz. Centering Control Tapped ⑥ 10Ω(Wirewound)
R8	2000Ω	2	RRW-068	W-2000	43-2000	VK-131	Vertical Linearity Control(Wirewound)
R9A	3Meg.	½	RRC-159	Q11-140	AG-85-8	AN-84	Vertical Size Control
B	Shaft		Not Req.	RQ	FKS-1/4	AK-1	Attach to R9A per instructions
R10A	25 KΩ	½	RRC-140	Q11-120v	AG-40-8	AN-26	AGC Control
B	Shaft		Not Req.	RQ	FKS-1/4	AK-1	Attach to R10A per instructions

RESISTORS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA General Elect. PART No.	IRC PART No.	IDENTIFICATION CODES ALL RESISTORS ♦ 10% UNLESS OTHERWISE SPECIFIED
R11	18KΩ	½	URD-079	BTS-18K	1st RF Amp. Plate
R12	5600Ω	1	URE-067	BTA-5600	Decoupling
R13	10KΩ	½	URD-073	BTS-10K	2nd RF Amp. Grid.
R14	33Ω	½	URD-013		2nd RF Amp. Cathode See Note 1
R15	12KΩ	½		BTS-12K	2nd RF Amp. Screen See Note 2
R16	1000Ω 20%	½	URD-049	BTS-1000	2nd RF Amp. Plate Decoupling
R17	5600Ω	½	URD-067	BTS-5600	RF Coil Shunt
R18	10KΩ	½	URD-073	BTS-10K	Mixer Grid
R19	220KΩ 20%	½	URD-105	BTS-220K	Mixer Grid
R20	1000Ω 20%	½	URD-049	BTS-1000	Mixer Plate Decoupling
R21	8200Ω	½	URD-071	BTS-8200	Osc. Grid
R22	3300Ω 20%	½	URD-081	BTS-3300	Osc. Plate
R23	2200Ω 20%	½	URD-057	BTS-2200	Osc. Plate Decoupling
R24	1000Ω	½	URD-049	BTS-1000	Converter XFMR Shunt
R25	120Ω	½	URD-027	BTS-120	Antenna Isolation
R26	1200Ω	½	URD-051	BTS-1200	RF Coil Shunt
R27	18KΩ	½	URD-079	BTS-18K	Voltage Divider
R28	18KΩ	½	URD-079	BTS-18K	1st Video IF XFMR Shunt
R29	68Ω	½	URD-021		1st Video IF Amp. Cathode
R30	1000Ω 20%	½	URD-049	BTS-1000	1st Video IF Amp. Decoupling
R31	470Ω 20%	½	URD-041	BTS-470	1st Video IF Amp. Decoupling
R32	22KΩ	½	URD-081	BTS-22K	2nd Video IF Coil Shunt
R33	22KΩ 20%	½	URD-081	BTS-22K	AGC Network
R34	10KΩ 20%	½	URD-073	BTS-10K	AGC Network
R35	18KΩ	½	URD-079		2nd Video IF Amp. Grid
R36	68Ω	½	URD-021		2nd Video IF Amp. Cathode
R37	1000Ω 20%	½	URD-049	BTS-1000	2nd Video IF Amp. Decoupling
R38	470Ω 20%	½	URD-041	BTS-470	2nd Video IF Amp Decoupling
R39	6800Ω	½	URD-089	BTS-6800	3rd Video IF Coil Shunt
R40	47KΩ 20%	½	URD-089	BTS-47K	AGC Network
R41	100KΩ 20%	½	URD-097	BTS-100K	AGC Network
R42	47KΩ	½	URD-089		3rd Video IF Amp Grid
R43	68Ω	½	URD-021		3rd Video IF Amp Cathode
R44	1000Ω 20%	½	URD-049	BTS-1000	3rd Video IF Amp Screen
R45	470Ω 20%	½	URD-041	BTS-470	3rd Video IF Amp Screen Decoupling
R46	27KΩ	½	URD-083	BTS-27K	4th Video IF Coil Shunt
R47	2200Ω	½	URD-057	BTS-2200	3rd Video IF Amp Plate Decoupling
R48	33KΩ	½	URD-085		4th Video IF Amp Grid
R49	150Ω	½	URD-029	BTS-150	4th Video IF Amp Cathode
R50	18KΩ	½	URD-079	BTS-18K	5th Video IF Coil Shunt
R51	1000Ω 20%	½	URD-049	BTS-1000	4th Video IF Amp. Decoupling
R52	470Ω 20%	½	URD-041	BTS-470	4th Video IF Amp. Decoupling
R53	220Ω 20%	2	URF-033		Decoupling
R54	68KΩ 5%	½	URD-093	BTS-68K	Series Test point No. 2
R55	3300Ω 5%	2	URD-1061		Video Det. Load
R56	3900Ω	2	URF-063	BTS-3900	Voltage Divider
R57	5600Ω	1	URE-067	BTA-5600	Voltage Divider
R58	1500Ω	2	URF-053	BTS-1500	Voltage Divider
R59	4700Ω	2	URF-065	BTS-4700	Voltage Divider
R60	1000Ω	½	URD-049	BTS-1000	Voltage Divider
R61	22KΩ	½	URD-081	BTS-22K	Voltage Divider
R62	4700Ω	½	URD-065	BTS-4700	Voltage Divider
R63	6800Ω	1	URE-069	BTA-6800	AGC Keying Plate
R64	33KΩ	½	URD-085	BTS-33K	AGC Network
R65	150KΩ	½	URD-101	BTS-150K	AGC Network
R66	150KΩ	½	URD-101	BTS-150K	AGC Network
R67	100KΩ	½	URD-097	BTS-100K	Picture Tube Grid
R68	10KΩ	½	URD-073	BTS-10K	Picture Tube Cathode Coil Shunt
R69	270KΩ	½	URD-107	BTS-270K	ACC Anode Load
R70	1Meg.	½	URD-121	BTS-1Meg	Voltage Divider
R71	1Meg 20%	½	URD-121	BTS-1Meg	Voltage Divider
R72	470K 20%	½	URD-113	BTS-470K	Voltage Divider
R73	1Meg	½	URD-121	BTS-1Meg	Voltage Divider
R74	56KΩ	½	URD-091		Sound Take off IF Amp. Grid
R75	150Ω	½	URD-029	BTS-150	Sound Take off IF Amp. Cathode
R76	1000Ω 20%	½	URD-049	BTS-1000	Sound Take off IF Amp. Decoupling
R77	470Ω 20%	½	URD-041	BTS-470	Sound Take off IF Amp. Decoupling
R78	150Ω	½	URD-029	BTS-150	Sound IF Amp. Cathode
R79	33KΩ	½	URD-085	BTS-33K	Sound IF Amp. Screen
R80	1000Ω 20%	½	URD-049	BTS-1000	Sound IF Amp. Plate Decoupling
R81	220KΩ 20%	½	URD-105	BTS-220K	Series Test point No. 7
R82	56KΩ	½	URD-091		Limiter Grid
R83	10KΩ	½	URD-073		Limiter Screen See Note 3
R84	1000Ω 20%	½	URD-049	BTS-1000	Limiter Plate Decoupling
R85	22KΩ	½	URD-081	BTS-22K	Voltage Divider
R86	22KΩ 5%	½	URD-081		Ratio Detector Diode Load
R87	22KΩ 5%	½	URD-081		Ratio Detector Diode Load
R88	270Ω	½	URD-035	BTS-270	Balancing
R89	22KΩ	½	URD-081	BTS-22K	De-Emphasis
R90	15KΩ	1	URE-077	BTA-15K	Voltage Divider
R91	47KΩ	½	URD-089	BTS-47K	Tone Compensation
R92	100KΩ	½	URD-097	BTS-100K	Tone Compensation
R93	6.8Meg	½	URD-141	BTS-6.8Meg	AF Amp. Grid
R94	68Ω	½	URD-021		AF Amp. Cathode
R95	220KΩ	½	URD-105	BTS-220K	AF Amp. Plate
R96	1200Ω	½	URD-051	BTS-1200	Feedback
R97	1Meg 20%	½	URD-121	BTS-1Meg	Phase Inverter Grid
R98	2700Ω	½	URD-059	BTS-2700	Phase Inverter Cathode
R99	36KΩ 5%	½	URD-1086		Phase Inverter Plate
R100	33KΩ	½	URD-085	BTS-33K	Voltage Divider
R101	1000Ω 20%	½	URD-049	BTS-1000	Parasitic Suppressor
R102	470KΩ 20%	½	URD-041	BTS-470K	Output Grid
R103	120Ω	½	URF-027	BW-2-120	Output Cathode Wirewound
R104	100Ω 20%	½	URD-025		Parasitic Suppressor
R105	1000Ω 20%	½	URD-049	BTS-1000 ∞	Parasitic Suppressor
R106	470KΩ 20%	½	URD-041	BTS-470K	Output Grid
R107	100Ω 20%	½	URD-025		Parasitic Suppressor
R108	3600Ω 5%	½	URD-1062		Isolation
R109	2.2Meg	½	URD-129	BTS-2.2Meg	Sync. Clipper Diode Load
R110	4.7Meg	½	URD-137	BTS-4.7Meg	1st Sync. Amp. Grid
R111	33KΩ	½	URD-085	BTS-33K	1st Sync. Amp. Plate
R112	33KΩ	½	URD-085	BTS-33K	Voltage Divider
R113	680KΩ 20%	½	URD-117	BTS-680K	Isolation
R114	56KΩ	2	URF-091	BTB-56K	2nd Sync. Amp. Plate
R115	56KΩ	2	URF-091	BTB-56K	2nd Sync. Amp. Plate
R116	6800Ω	2	URF-069	BTB-6800	Voltage Divider
R117	68KΩ	½	URD-093	BTS-68K	Integrator Network

RESISTORS (CONT.)

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA General Elect. PART No.	IRC PART No.	IDENTIFICATION CODES
R118	2.2KΩ	½	URD-081	BTS-22K	Integrator Network
R118A	22KΩ	½		BTS-22K	Integrator Network
B	8200Ω	½	♦REK-001	BTS-8200	Integrator Network
C	8200Ω	½		BTS-8200	Integrator Network
R120	1Meg 20%	½	URD-121	BTS-1Meg	Vertical Osc. Grid
R121	1Meg	½	URD-121	BTS-1Meg	Vertical Osc. Plate
R122	2.7Meg	½	URD-131	BTS-2.7Meg	Vertical Osc. Decoupling
R123	1Meg	½	URD-121	BTS-1Meg	Vertical Blanking Grid
R124	100KΩ	½	URD-097	BTS-100K	Vertical Feedback
R125	3300Ω	½	URD-081	BTS-3300	Vertical Peaking
R126	2.2Meg	½	URD-129	BTS-2.2Meg	Vertical Output Grid
R127	220Ω	½	URD-033	BTS-220	Vertical Output Cathode
R128	470Ω	2	URF-041	BTB-470	Vertical Output Decoupling
R129	470KΩ	2		BTB-470K	Voltage Divider See Note 6
R130	470KΩ	2		BTB-470K	Voltage Divider. See Note 6
R131	470KΩ	2		BTB-470K	Voltage Divider See Note 6
R132	68KΩ	½	URD-093	BTS-68K	Voltage Divider
R133	150KΩ	½	URD-101	BTS-150K	Voltage Divider
R134	68KΩ	½	URD-093	BTS-68K	Voltage Divider
R135	1Meg	½	URD-121	BTS-1Meg	Horiz. Phase Inverter Diode Load
R136	68KΩ	½	URD-093	BTS-68K	Horiz. Phase Inverter Diode Load
R137	1Meg	½	URD-121	BTS-1Meg	Horiz. Phase Inverter Diode Load
R138	220KΩ	½	URD-105	BTS-220K	Horiz. Feedback Network
R139	100KΩ	1	URE-097	BTA-100K	Horiz. Feedback Network
R140	22KΩ	½	URD-081	BTS-22K	Horiz. Feedback Network
R141	150KΩ	½	URD-101	BTS-150K	Horiz. AFC Filter
R142	1Meg 20%	½	URD-121	BTS-1Meg	Horiz. AFC Filter
R143	68KΩ 20%	½	URD-093	BTS-68K	Horiz. AFC Filter
R144	220Ω 20%	½	URD-033	BTS-220	Horiz. AFC Cathode
R145	68KΩ	1	URE-093	BTA-68K	Horiz. AFC Plate
R146	27KΩ	½	URD-083	BTS-27K	Series Horiz. Hold Control
R147	22KΩ	½	URD-081	BTS-22K	Horiz. Osc. Grid
R148	100KΩ	2	URF-097	BTB-100K	Horiz. Osc. Screen
R149	1Meg	½	URD-121	BTS-1Meg	Horiz. Osc. Plate
R150	820KΩ	½	URD-119	BTS-820K	Voltage Divider
R151	330Ω 20%	½	URD-037		Parasitic Suppressor
R152	22KΩ	½	URD-081	BTS-22K	Series Horiz. Drive Control
R153	1Meg 20%	½	URD-121	BTS-1Meg	Horiz. Output Grid
R154	90Ω 5%	2			Horiz. Output Cathode See Note 4
R155	3000Ω	10	RRW-062	1 3/4A-3000	Horiz. Output Screen Wirewound
R156	†		RRW-061		Bleeder Wirewound
R157	475Ω	15	RRW-060		Voltage Divider Wirewound
R158	39Ω	1	URE-015		Voltage Divider
R159	100KΩ 20%	½	URD-097	BTS-100K	Voltage Divider
R160	12KΩ	2	URF-075	BTB-12K	Voltage Divider
R161	470KΩ 20%	1	URE-113		HV Filter
R162	470KΩ 20%	1	URE-113		HV Filter
R163	470KΩ 20%	1	URE-113		HV Filter
R164	470KΩ 20%	1	URE-113		HV Filter
R165	820Ω	½	URD-047	BTS-820	Voltage Divider
R166	100KΩ	½	URD-097	BTS-100K	Voltage Divider
R167	1800Ω	1		BTA-1800	Voltage Divider See Note 5
R168	470Ω	25	RRW-063		Focus Coil Shunt Wirewound
R169	1000Ω	15	RRW-064	3D-1000	Voltage Divider Wirewound
R170	1Meg 20%	½	URD-121	BTS-1Meg	Line Isolation

† Special type - resistance & wattage varies with voltage (for example ⑥ 155 volts the resistance is 16.5KΩ)
♦ Items R118A, R119B, R119C, C90A, C90B, C90C, are combined in one unit
Note 1 Not used in all Models
Note 2 Some Models use 6800Ω resistor in this application
Note 3 Some Models use 100KΩ resistor in this application
Note 4 Some Models use 82Ω resistor in this application
Note 5 Some Models use 1500Ω resistor in this application
Note 6 Some Models use 680KΩ 1 Watt resistor in this application

TRANSFORMER (POWER)

ITEM No.	RATING PRI.	RATING SEC. 1	RATING SEC. 2	RATING SEC. 3	REPLACEMENT DATA General Elect. PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.
T1	117VAC ⑥2.6A	680VCT .155ADC	480VCT .145DC	5VAC ⑥3A	RTP-308			
		SEC. 4	SEC. 5	SEC. 6				
		5VAC ⑥3A	6.3VAC ⑥1.2A	6.3VAC ⑥.9A				

TRANSFORMER (SWEEP CIRCUITS)

ITEM No.	RATING DC RESISTANCE PRI.	RATING DC RESISTANCE SEC.	REPLACEMENT DATA General Elect. PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	NOTES
T2	200Ω	1.1KΩ	RLC-108	A-8122	A-4900①	TBO-2①	Vent Block Osc. Trans.
T3	450Ω	25Ω	RTO-109		HVO-7		Horiz. Output Trans.
	Tap40Ω	Tap 8Ω					
		SEC. 2					
		0Ω					
T4	860Ω	10Ω	RTD-097	A-8113①			Vent Output Trans.
T5A	120Ω		RLD-039				Horiz. Deflection coils
B	60Ω						Vent Deflection coils
T6	480Ω		RLF-042	FC-11	MF-2		Focus coil

① Drill one new mounting hole.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING IMPEDANCE PRI.	RATING IMPEDANCE SEC.	RATING DC RES. PRI.	RATING DC RES. SEC.	REPLACEMENT DATA General Elect. PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	INSTALLATION NOTES
T7	4.3KΩ CT	4Ω	200Ω CT	.2Ω	RTD-096	A-3824			

PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			NOTES
	FIELD RES.	V. C. IMP.	General Elect. PART No.	VIKING PART No.	QUAM PART No.	
SP1	PM	4Ω	S1212D7	12J12	12A4A	
	CONE DIA.	V. C. DIA.				
SP2	11 7/8"	1"				

FILTER CHOKE

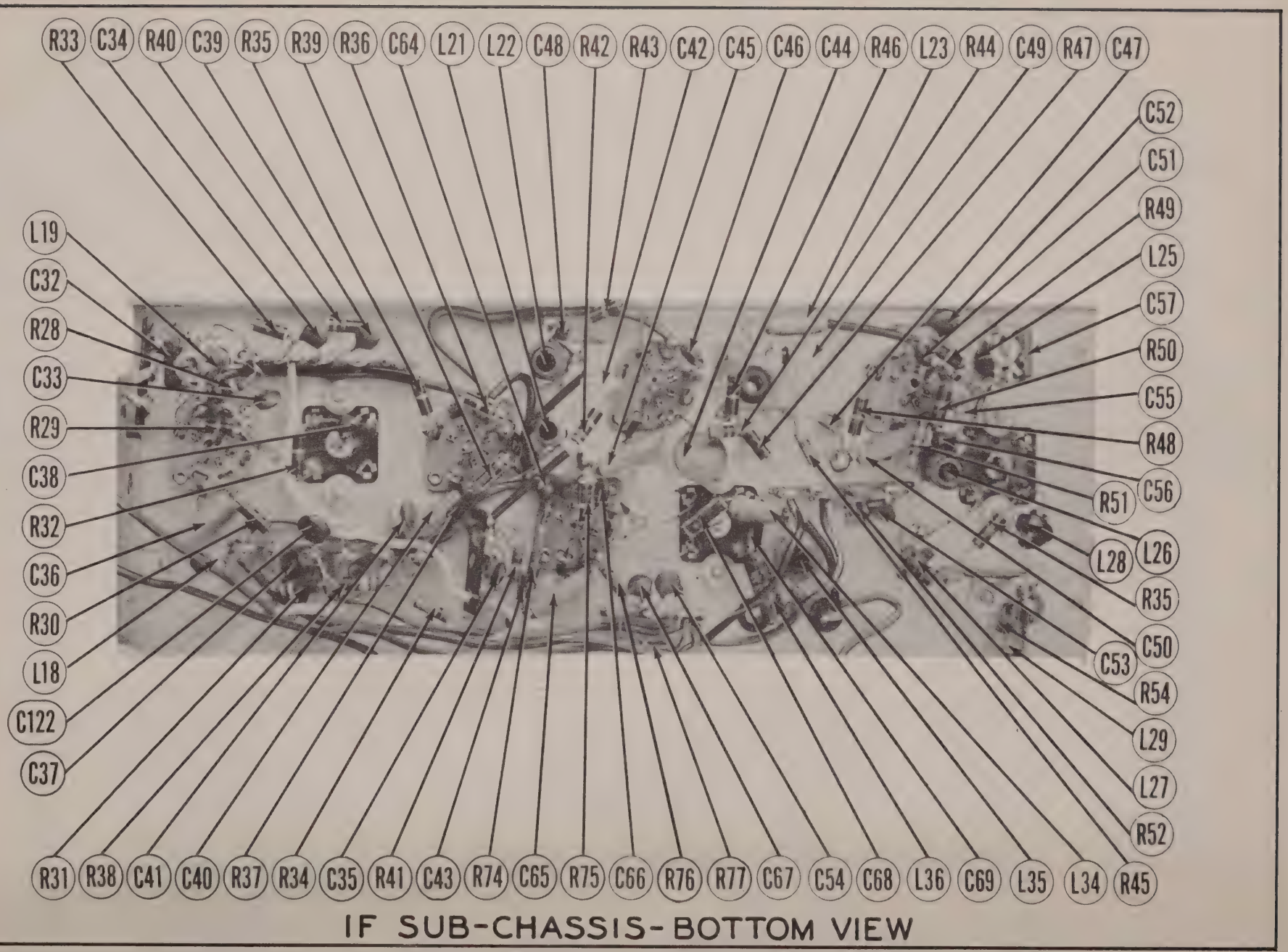
ITEM No.	RATINGS			REPLACEMENT DATA				INSTALLATION NOTES
	TOTAL DIRECT CURRENT	D. C. RESISTANCE	INDUCTANCE (0 CURRENT 1000 ✓)	General Elect. PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	
L1	.110A	240Ω	7Henries	RLF-040				
L2	.250A	165Ω	7.5Henries	RLF-041				

COILS (RF-IF)

ITEM No.	USE	DC RES.		REPLACEMENT DATA		NOTES
		PRI.	SEC.	General Elec General Elect. PART No.	IRC PART No.	
L3	Ant. Trans.	0Ω	0Ω	RLA-037		
L4	RF Choke	0Ω		RLI-146		
L5	Ant. coil	0Ω				
L6	IF Trap	.1Ω		RLI-159		
L7	Fil. choke	.3Ω		RLI-144	CLA	5.6 Microhenries
L8	1st. RF Plate coils	0Ω				
L9	RF coil	0Ω				
L10	2nd. RF Grid coils	0Ω				Part of tuner
L11	RF choke	3Ω			CLA	3.3 Microhenries
L12	2nd. RF plate coils	0Ω				
L13	Osc. coils	0Ω				
L14	Cathode choke	.2Ω		RLI-136		
L15	RF choke	3Ω			CLA	3.3 Microhenries
L16	Conv. Plate coil	0Ω	.1Ω	RTL-126		
L17	RF choke	3Ω			CLA	3.3 Microhenries
L18	Fil. choke	.1Ω		RLI-142		
L19	1st. Video IF	.1Ω	.1Ω	RTL-118		Includes trap
L20	2nd. Video IF	.1Ω		RLI-133		Includes trap
L21	3rd Video IF	.1Ω		RLI-131		Includes trap
L22	Cathode trap	0Ω	0Ω	RTL-122		
L23	Fil. choke	.1Ω		RLI-142		
L24	4th Video IF	.1Ω		RLI-132		Includes trap
L25	5th. Video IF	.1Ω		RTL-119		Includes trap
L26	Adj. Video trap	0Ω		RLI-135		
L27	Peaking	7.8Ω		RLI-156		250 Microhenries
L28	Peaking	4.8Ω		RLI-108		110 Microhenries
L29	RF choke	8Ω		RLI-122	CL-1	10 Microhenries
L30	Peaking	4.8Ω		RLI-108		110 Microhenries
L31	Peaking	17Ω		RLI-155		1000 Microhenries
L32	Peaking	7Ω		RLI-143		220 Microhenries
L33	4.5 MC trap	1.1Ω		RLI-140		
L34	RF choke	.1Ω		RLI-142		
L35	1st soundIF	1.9Ω		RLI-139		
L36	RF choke	1.8Ω		RLI-122	CLA	2.2 Microhenries
L37	2nd. Sound IF	3.1Ω	3.3Ω	RTL-120		
L38	Ratio Det. Trans.	3.5Ω	.5Ω	RTD-008		Tap .4Ω
L39	Horiz. Osc.	120Ω	Tap 60Ω	RLC-107		
L40	Width coil	80Ω	58Ω	RLD-028		
L41	Horiz. Lin.	20Ω		RLD-027		
L42	Cathode choke	1.8Ω		RLI-122	CLA	2.2 Microhenries
L43	Anti-Ringing coil	8Ω		RLI-138	CL-1	10 Microhenries
L44	Anti-Ringing coil	8Ω		RLI-138	CL-1	10 Microhenries
L45	Anti-Ringing coil	8Ω		RLI-138	CL-1	10 Microhenries

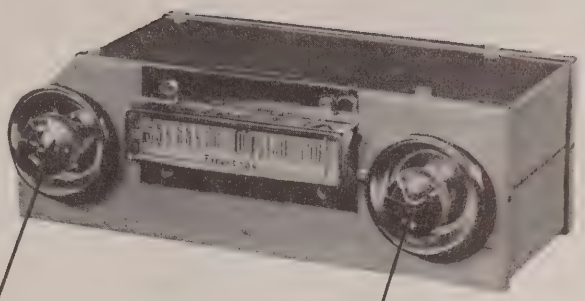
MISCELLANEOUS

ITEM No.	PART NAME	General Electric PART No.	NOTES
M1	RF Tuner		
M2	IF Coil		
	RF Choke	RFL-024	31 Microhenries
	Crystal	1N64	1N64
	Capacitor	RCN-029	9MMF
	Capacitor	UCG-1005	5MMF
			Complete Assembly Part #RLX-031
M3	Video IF		Includes trap
	Crystal	1N64	1N64
	Resister		100KΩ
			Complete Assembly Part #RLX-032
M4	Switch	RSS-005	T.V. - Phono
M5	Ion Trap	RET-011	
B5	Trimmer	RCY-069	1 - 12 MMF (Yoke Balancing)
B2	Trimmer	RCY-064	110 - 580 MMF (Horiz. Drive)
	Switch Wafer	RSX-023	(Complete) Ant. coils
	Switch Wafer	RSX-022	(Complete) 1st. RF Plate coils
	Switch Wafer	RSX-021	(Complete) 2nd RF Grid coils
	Switch Wafer	RSX-020	(Complete) 2nd RF Plate coils
	Switch Wafer	RSX-019	(Complete) Osc. coils
	Knob	RDX-223	Off/on Volume
	Knob	RDK-238	Channel Selector
	Knob	RDK-241	Fine Tuning
	Knob	RDK-240	Contrast
	Knob	RDK-239	Focus, Brightness, Vert. & Horiz. Hold (4 Required)



IF SUB-CHASSIS-BOTTOM VIEW

FIRESTONE
MODEL 4-B-60



VOLUME CONTROL
ON-OFF SWITCH

TUNING CONTROL

FIRESTONE
MODEL 4-B-60

TRADE NAME	Firestone, Model 4-B-60
SUPPLIER	Firestone Tire & Rubber Co., Akron, Ohio
TYPE SET	Battery Operated Custom-Built 1951 Ford Superheterodyne Receiver
TUBES (SIX)	Types 6BA6 RF Amp., 6BE6 Converter, 6BA6 IF Amp., 6AT6 Det-AVC-AF, 6V6GT or 6AQ25 Power Output, 6X5GT or 6X4 Rectifier.
POWER SUPPLY	6 Volt Storage Battery — RATING 5 Amp. @ 6.3 Volts DC
TUNING RANGE—BROADCAST	538-1600KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer turn tuning gang fully closed and set the pointer 2" to the right of the center of the volume control shaft.. Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.1MFD	High side to pin 7 (grid) of 6BE6, (V2). Low side to chassis.	455KC (400 ∿ Mod.)	Tuning gang fully open.	Across voice coil.	A1, A2, A3, A4	Adjust for maximum output.
2.	100MMF	High side to ant. socket. Low side to chassis.	1600KC	"	"	A5	"
3.	"	"	1400KC	Tune for maximum output.	"	A6, A7	"
4.	"	"	600KC	"	"	A8, A9	Adjust for maximum output. Repeat steps 3 and 4 until no further improvement can be made.

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed." "Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1951 by Howard W. Sams & Co., Inc., Indianapolis, Indiana, U. S. of America. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc." Printed in U. S. of America

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: FIRESTONE PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RTMA BASE TYPE	INSTALLATION NOTES
V1	RF Amplifier	6BA6	6BA6	7BK	
V2	Converter	6BE6	6BE6	7CH	
V3	IF Amplifier	6BA6	6BA6	7BK	
V4	Detector-AVC-AF Amplifier	6AT6	6AT6	7BT	
V5A	Power Output	6V6GT	6V6GT	7AC	
B	Power Output	6AQ5	6AQ5	7BZ	
V6A	Rectifier	6X5GT	6X5GT	6S	
B	Rectifier	6X4	6X4	5BS	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: FIRESTONE PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C1A	20	350	CE-86	AFH 3-107		UP2235C		TVL-3678	■ Filter
B	20	350							▲ Filter
C	20	25							Output Cathode
C2	.05	200	C207	P288-05	DF-503	PTE4S5		2TM-S5	AVC Filter
C3	.05	200	C207	P288-05	DF-503	PTE4S5		2TM-S5	RF Amp. Screen
C4	.05	200	C207	P288-05	DF-503	PTE4S5		2TM-S5	AVC Filter
C5	100		CC200	SI100	D6-101	5W5T1	GP1K-101	5GA-T1	Osc. Grid Cap.
C6	220		CC201	SI220	D6-221	5W5T25	GP1K-221	5GA-T22	Diode RF Filter
C7	.01	600	C206	P688-01	D6-103	PTE6S1	GP2-333-103	6TM-S1	Audio Coupling
C8	220		CC201	SI220	D6-221	5W5T25	GP1K-221	5GA-T22	AF Amp. Plate
C9	.01	600	C206	P688-01	D6-103	PTE6S1	GP2-333-103	6TM-S1	Audio Coupling
C10	220		CC201	SI220	D6-221	5W5T25	GP1K-221	5GA-T22	Output Grid *
C11	.01	600	C206	P688-01	D6-103	PTE6S1	GP2-333-103	6TM-S1	Output Plate
C12	.008	1600	C205			PTE16D8		MB-D8	Buffer Cap.
C13	.5	100	C209	P185-5		GT2P5		68P20	Hash Filter
C14	.5	100	C209	P185-5		GT2P5		68P20	Hash Filter

* Not used in all models.

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: FIRESTONE PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	INSTALLATION NOTES
R1A	750KΩ	½	RV-75 ø	Q13-137	AG-79-Z		Volume Control
B	Shaft		Not Req.	Not Req.	FS-3		Attach to R1A Per Instructions
C	Switch		Not Req.	76-1	SWB		Attach to R1A Per Instructions

ø Some sets use control having part number RV-100.

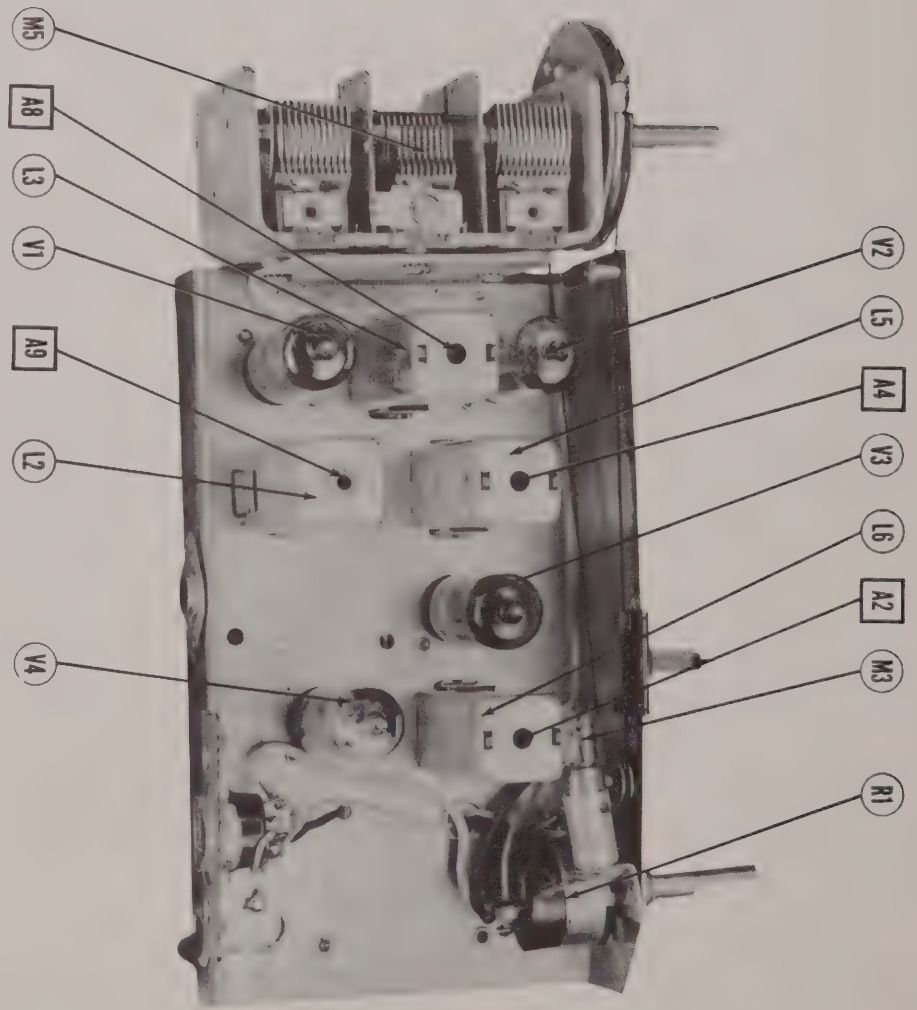
RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: FIRESTONE PART No.	IRC PART No.	IDENTIFICATION CODES
R2	330Ω	½	R303	BTS-330	RF Amp. Cathode
R3	1Meg	½	R309	BTS-1Meg	AVC Network
R4	22KΩ	½	R306	BTS-22K	Osc. Grid
R5	1500Ω	½	R314	BTS-1500	IF Amp. Cathode
R6	2Meg	½	R310	BTS-2.2Meg	AVC Network
R7	22KΩ	2	R313	BTB-22K	Screen Dropping
R8	10Meg	½	R311	BTS-10Meg	AF Amp. Grid
R9	270KΩ	½	R307	BTS-270K	AF Amp. Plate
R10	470KΩ	½	R308	BTS-470K	Output Grid
R11	330Ω	½	R303	BTS-330	Output Cathode
R12	1000Ω	1	R312	BTA-1000	Filter
R13	100Ω	½	R301		Hash Suppressor
R14	100Ω	½	R301		Hash Suppressor

TRANSFORMER (VIBRATOR)

ITEM No.	RATING: PRI.	RATING: SEC. 1	RATING: SEC. 2	RATING: SEC. 3	REPLACEMENT DATA: FIRESTONE PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.
T1	6.3VDC @ 3A	425VCT .038ADC			TV-100 or 318V-2		P-2970	

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		FIRESTONE PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	
	PRI.	SEC.	PRI.	SEC.					
T2	4.8KΩ	3.4Ω	260Ω	.7Ω		A-3877	A-2930	RO-8	

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			FIRESTONE PART No.	JENSEN PART No.	QUAM PART No.	
	FIELD	V.C. IMP.		ST803	52A1	
SP1	PM	3.4Ω	PM-705	Mod. P525-V		
	CONE DIA.	V.C. DIA.				
SP2	5"	9/16				

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		
		PRI.	SEC.	AUTOMATIC PART No.		
L1	Ant. Hash Choke	1.5Ω		L200		
L2A	Ant. Coil	14Ω	5Ω	57FB-3		
B	Ant. Coil			15053		Alternate
L3A	RF Coil	100Ω	7.5Ω	57FB-4		
B	RF Coil			15054		Alternate
L4	Osc. Coil	9Ω	Tapl. 5Ω	L201		
L5A	1st IF	21Ω	21Ω	1655-16		
B	1st IF			14977		Alternate
L6A	2nd IF	21Ω	21Ω	1655-16		
B	2nd IF			14977		Alternate
L7	Hash Choke	.3Ω		L202		
L8	Hash Choke	.2Ω		L203		

VIBRATOR

ITEM No.	TYPE	INPUT VOLTS	FREQUENCY	REPLACEMENT DATA			INSTALLATION NOTES
				FIRESTONE PART No.	CORNELL-DUBILIER PART No.	RADIART PART No.	
M1	INT.	6.3 VDC	115 ∿	V-83	5301	5301	

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA				REMARKS
			FIRESTONE PART No.		LITTELFUSE PART No.		
			FUSE	HOLDER	FUSE	HOLDER	
M2	3AG	15A	A201	A300	311016	155020	

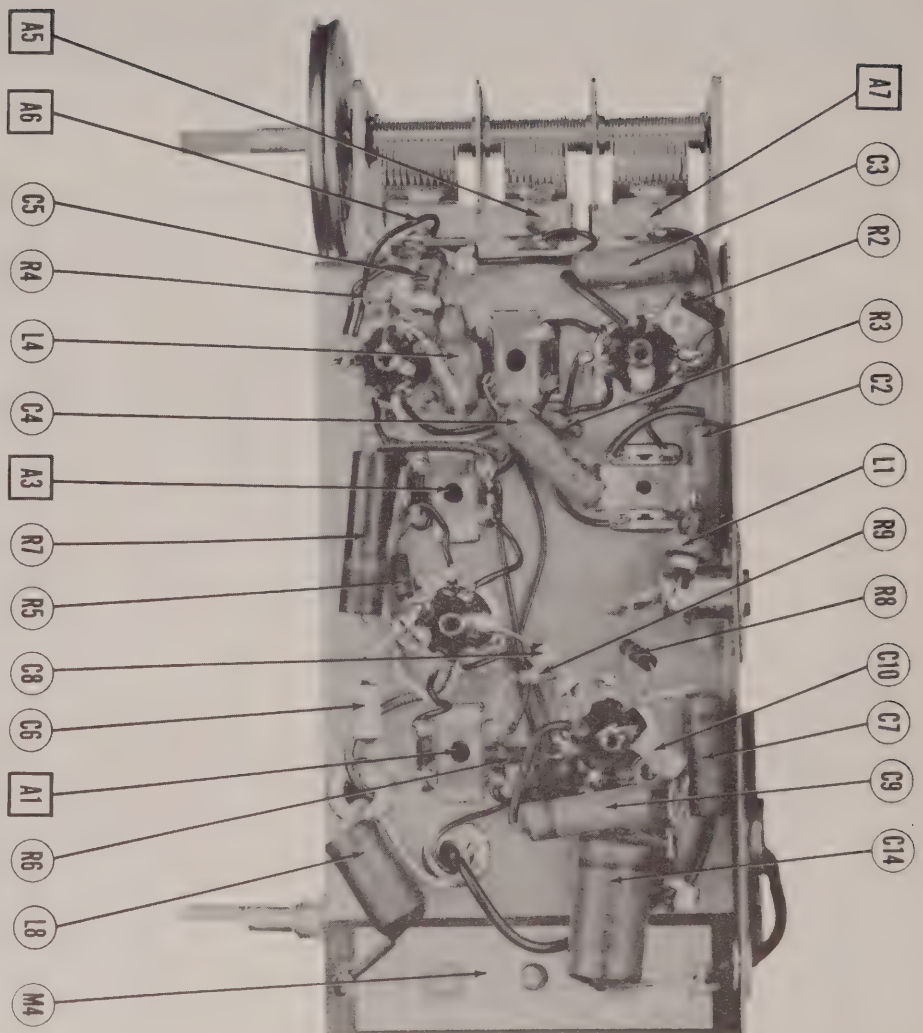
DIAL LIGHTS

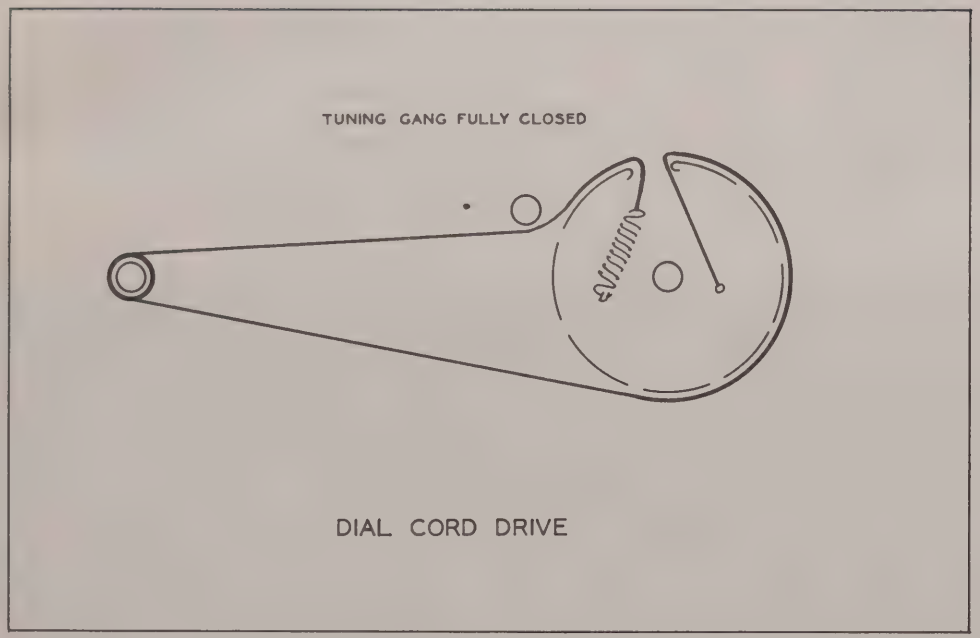
ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		NOTES
					FIRESTONE PART No.		
M3	Bayonet	6-8	.15	Brown	T47		Type number 47.

MISCELLANEOUS

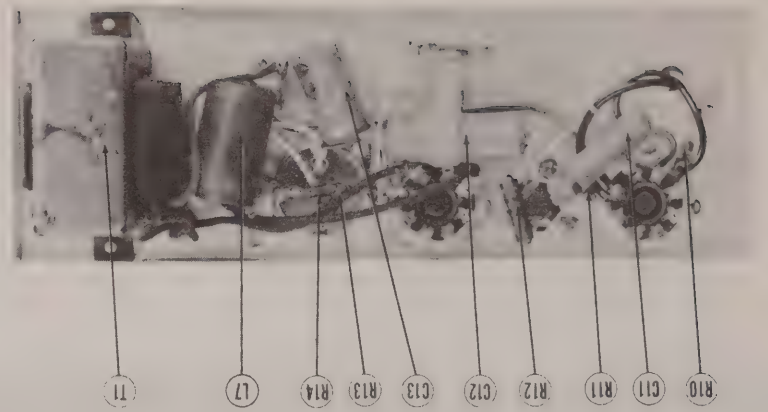
ITEM No.	PART NAME	FIRESTONE PART No.	NOTES
M4	Spark Plate		
M5	3 Gang Var. Cap.	CV-100A	(23-391MMF, 24-387MMF, 35-198MMF)
	Dial Scale	D151	
	Dial Pointer	PS151	
	Knob	H155	

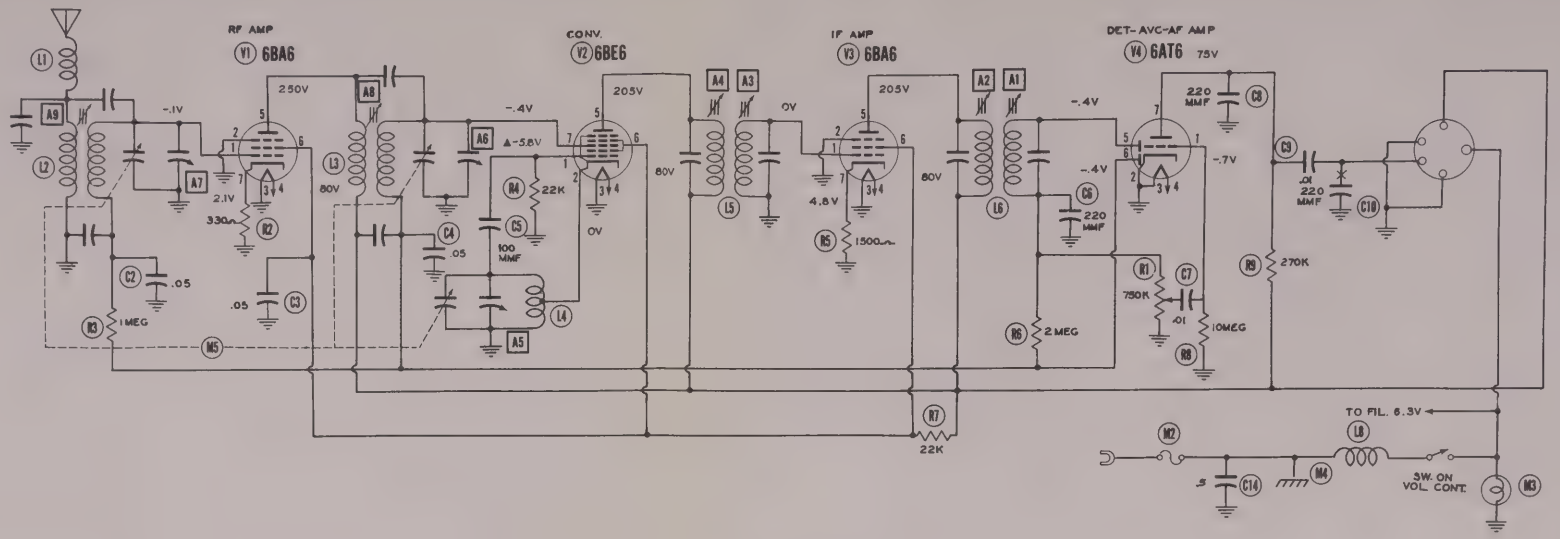
CHASSIS—BOTTOM VIEW





DIAL CORD DRIVE





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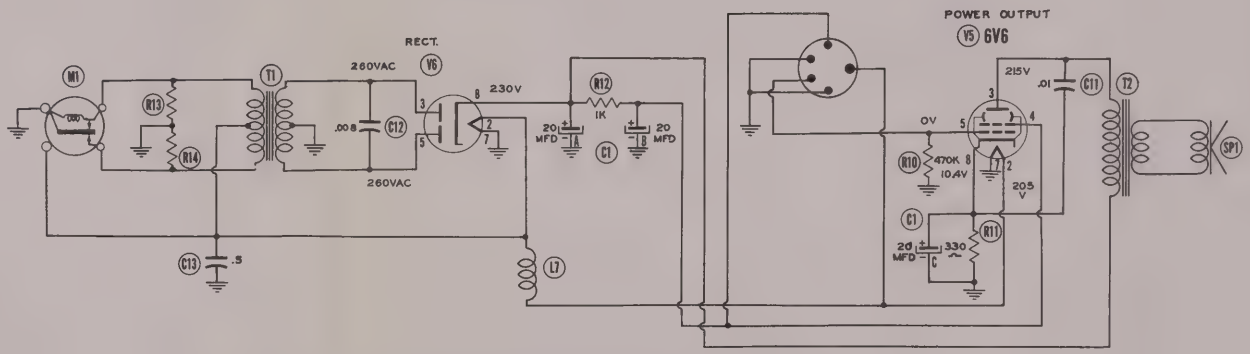

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
V 1	6BA6	3.7Meg	0Ω	0Ω	.4Ω	†1KΩ	†23KΩ	330	
V 2	6BE6	22KΩ	.9Ω	0Ω	.4Ω	†1KΩ	†23KΩ	2.7Meg	
V 3	6BA6	2Ω	0Ω	0Ω	.4Ω	†1KΩ	†23KΩ	1.5KΩ	
V 4	6AT6	10Meg	0Ω	0Ω	.4Ω	750KΩ	2.7Meg	†270KΩ	
V 5	6V6GT	Inf	.4Ω	†265Ω	†.1KΩ	50KΩ	Inf.	0Ω	330Ω
V 6	6X5GT	Inf	.4Ω	250Ω	Inf.	260Ω	Inf.	0Ω	40KΩ

▲ TAKEN WITH VACUUM TUBE VOLTMETER
† MEASURED FROM PIN 8 OF V6

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

1 - DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1000 ohms per volt.
2 - Socket connections are shown as bottom views.
3 - Measured values are from socket pin to common negative.
4 - Battery voltage maintained at 6.3 volts for voltage readings.
5 - Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
6 - Volume control at maximum, no signal applied for voltage measurements.

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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JACKSON MODEL JP-30

JACKSON MODEL JP-30

JACKSON MODEL JP-30

TRADE NAME	Jackson, Model JP-30
MANUFACTURER	Jackson Industries Inc., 500 E. 40th St, Chicago, Illinois
TYPE SET	AC Operated Audio Amplifier with 3 speed Phono Player
TUBES (THREE)	Types 12AT6 AF Amp., 50C5 Power Output, 35W4 Rectifier
POWER SUPPLY	110 - 120 Volts AC RATING .42 Amp. at 117 Volts AC

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

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PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: JACKSON PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RTMA BASE TYPE	INSTALLATION NOTES
V1	AF Amplifier	12AT6	12AT6	7BT	
V2	Power Output	50C5	50C5	7CV	
V3	Rectifier	35W4	35W4	5BQ	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: JACKSON PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C1A	40	150		PRS150/40-		EDL4415		TVA-2445	Filter
B	40	150		40					Filter
C2	.005	600		P688-005	D6-502	PTE6D5	GP2-333-502	6TM-D5	Audio Coupling
C3	.005	600		P688-005	D6-502	PTE6D5	GP2-333-502	6TM-D5	Tone Comp.
C4A	.01				♦PC-80				Audio Coupling
B	250								AF Amp. Plate
C									Power Output Grid
C5	.01	400		P488-01	D6-103	PTE4S1	GP2-333-103	4TM-S1	Power Output Plate
C6	.1	400		P488-1	DF-104	PTE4P1		4TM-P1	Line Isolation

♦ Items C4A, C4B, C4C, R6A, R6B are combined in one unit.
When replacing separately, C4B and C4C should total 250 MMF

CONTROLS

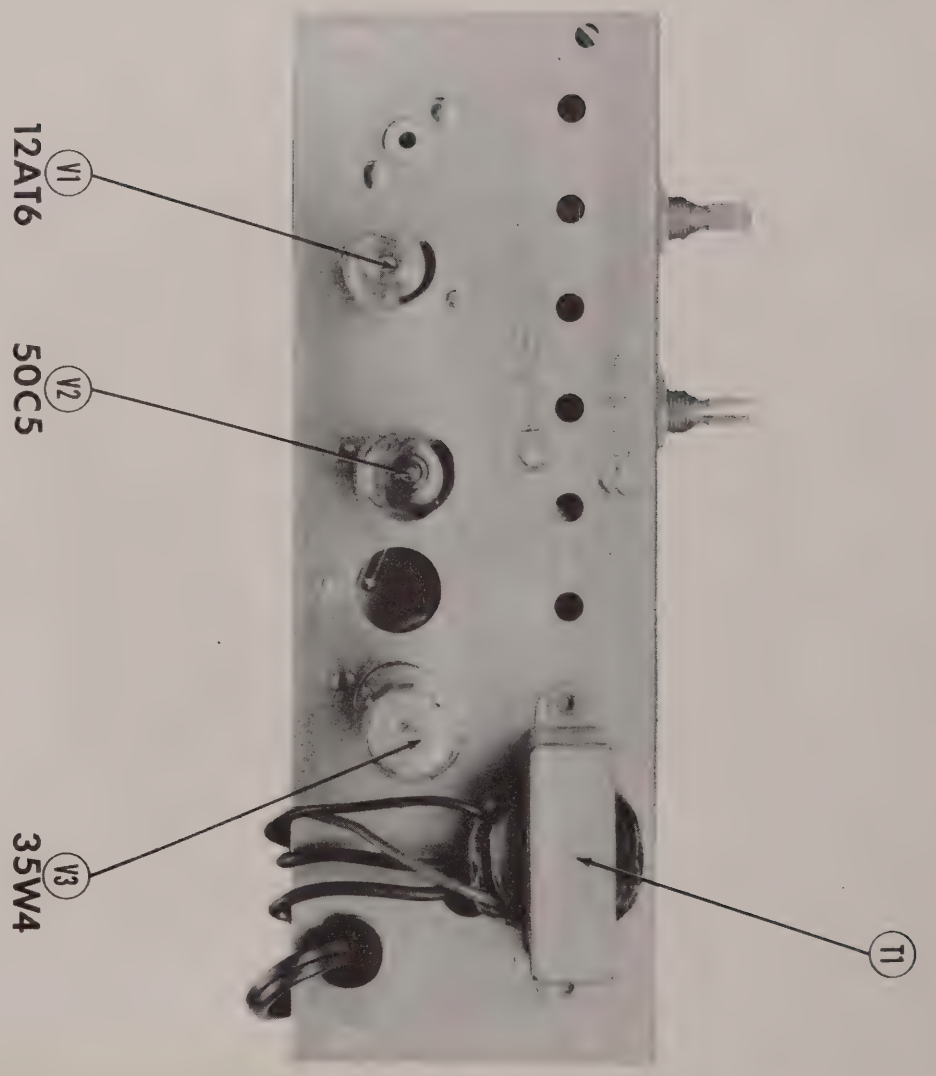
ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: JACKSON PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	INSTALLATION NOTES
R1A	500KΩ	½		Q13-133	AG 60-Z	B-60-S	Volume Control
B	Shaft			Not Req.	KSS-3	Not Req.	Attach to R1A per instructions
C	Switch			76-1	SWB	Not Req.	Attach to R1A per instructions
R2A	500 KΩ	½		Q13-133	AG-60-Z	B-60-S	Tone Control
B	Shaft			Not Req.	KSS-3	Not Req.	Attach to R2A per instructions
C	Switch			76-1	SWB	Not Req.	Attach to R2A per instructions

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: JACKSON PART No.	IRC PART No.	IDENTIFICATION CODES
R3	680KΩ	½		BTS-680K	Phono Shunt
R4	47KΩ	½		BTS-47K	Series Phono
R5	4.7 Meg	½		BTS-4.7 Meg	AF Amp. Grid
R6A	500 KΩ	½		BTS-470K	AF Amp Plate Load - See Note
B	500KΩ	½		BTS-470K	Output Grid-See Note
R7	150Ω	½		BTS-150	Output Cathode
R8	2200Ω	½		BTS-2200	Filter
R9	15Ω	½		BW-½-15	Rectifier Ballast
R10	120Ω	10		1 3/4A-125	Series Filament

Note: Items C4A, C4B, R6A, and R6B are combined in one unit

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		JACKSON PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	
	PRI.	SEC.	PRI.	SEC.					
T1	2.5KΩ	3-4Ω	200Ω	.6Ω	A-1658-13	A-3332 ①	A-3025 ①	RO-2 ①	① Drill one new mounting hole

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			JACKSON PART No.	JENSEN PART No.	QUAM PART No.	
	FIELD	V.C. IMP.				
SP 1	PM	3Ω	52B-37	ST105 Model P5-X·	5A1	
	CONE DIA	V.C. DIA				
SP2	5"	9/16"				

PHONO CARTRIDGE

ITEM No.	REPLACEMENT DATA							REMARKS
	JACKSON PART No.	ASTATIC PART No.		SHURE PART No.		ELECTRO-VOICE PART No.		
		CARTRIDGE	NEEDLE	CARTRIDGE	NEEDLE	CARTRIDGE	NEEDLE	
M1		LQD-1J	"Q" Q-33			96-T	O-1 or S-1 and O-3 or S-3	
		*7-D		*901D		*2600		*Pickup Arm Complete

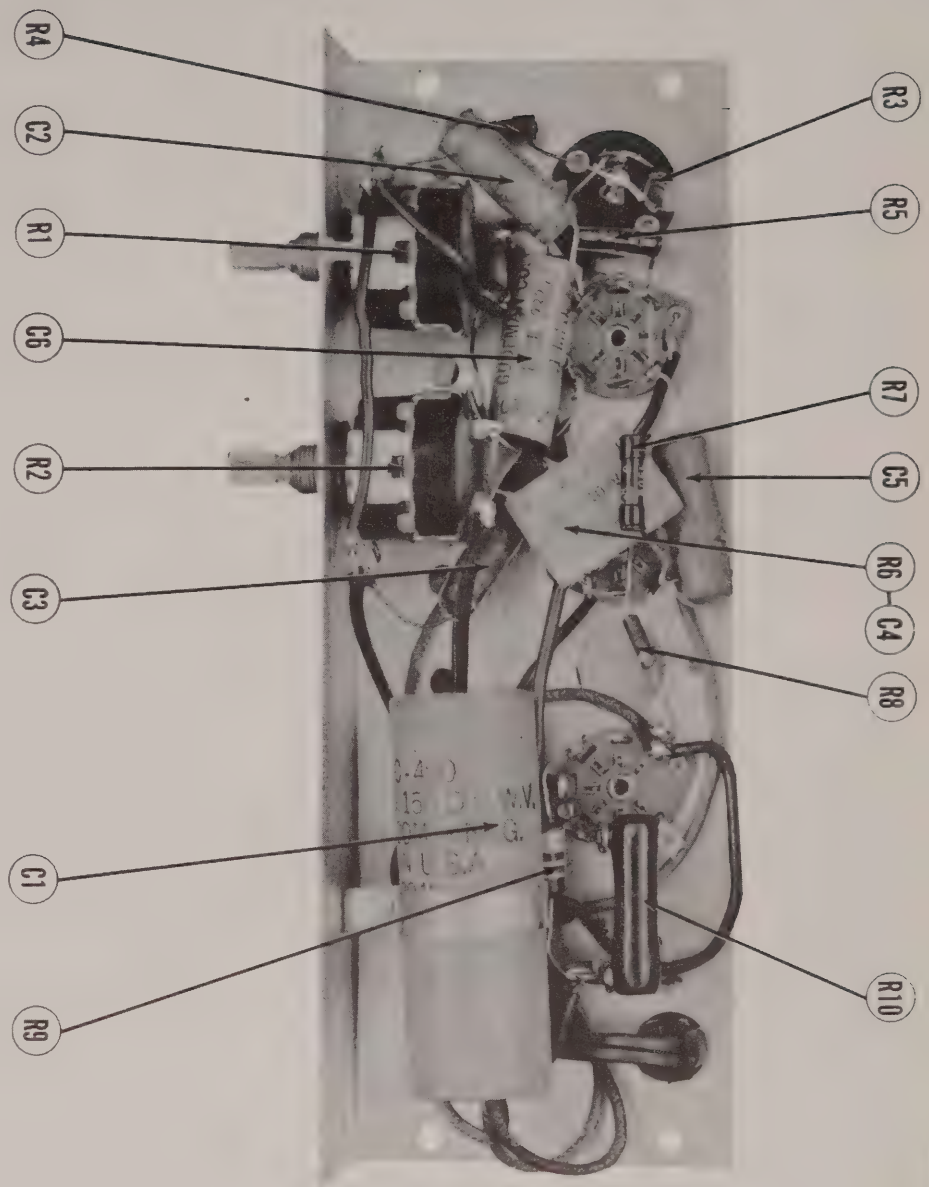
ASTATIC AND ELECTRO -VOICE NEEDLE LISTINGS SHOWN ABOVE ARE SPECIFIED FOR THE RESPECTIVE REPLACEMENT CARTRIDGES LISTED. FOR ORIGINAL CARTRIDGE NEEDLE REPLACEMENTS SEE BELOW

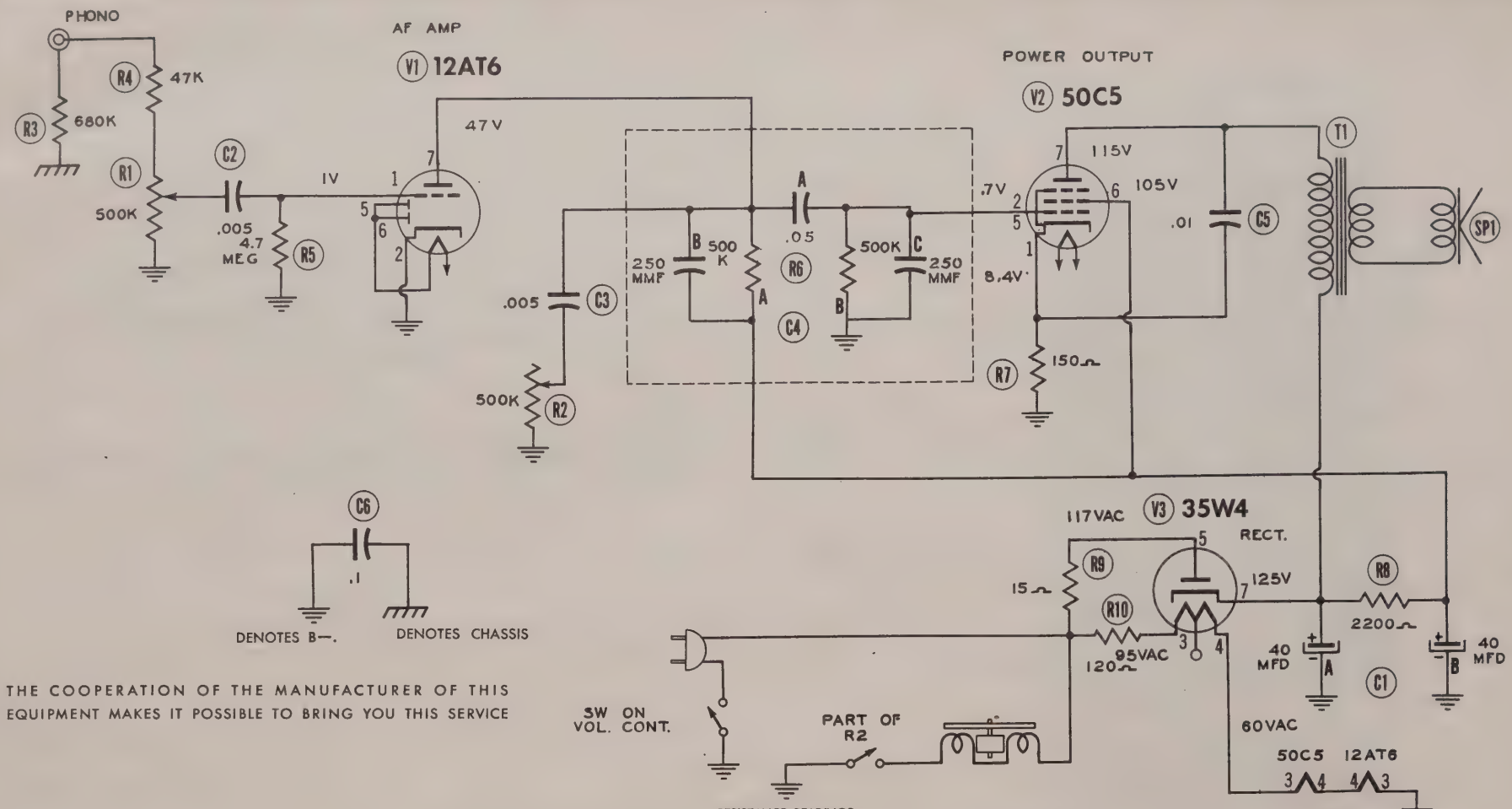
PHONO NEEDLE

(FOR REPLACEMENT IN ORIGINAL EQUIPMENT CARTRIDGE)

ITEM No.	REPLACEMENT DATA		REMARKS
	JACKSON PART No.	WALCO PART No.	
M2		W-2A or W-2S and W-2MGA or W-2MGS	

CHASSIS—BOTTOM VIEW





THE COOPERATION OF THE MANUFACTURER OF THIS EQUIPMENT MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V 1	12AT6	4.7Meg	0Ω	0Ω	12Ω	0Ω	0Ω	†500KΩ
V 2	50C5	150Ω	500KΩ	62Ω	12Ω	500KΩ	†2.2KΩ	†200Ω
V 3	35W4	Inf.	Inf.	97Ω	62Ω	230Ω	79Ω	50KΩ

†MEASURED FROM PIN 7 of V3

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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153-7

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

PHOTOFACT* Folder

MAJESTIC MODELS A-70, A-712, 17FA, 17JA, 17X, 20K, 20KA, 20LA, 20UAT, 20UC, 20UT, 20X, 70, 72, 73, 700, 701, 712, 715, 717, 718, 719, 800, 801, 802, 803, 804

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Merely insert the corresponding folder on this model in this envelope to retain proper filing and indexing order.

MODEL 72

MAJESTIC MODELS A-70, A-712, 17FA, 17JA, 17X, 20K, 20KA, 20LA, 20UAT, 20UC, 20UT, 20X, 70, 72, 73, 700, 701, 712, 715, 717, 718, 719, 800, 801, 802, 803, 804

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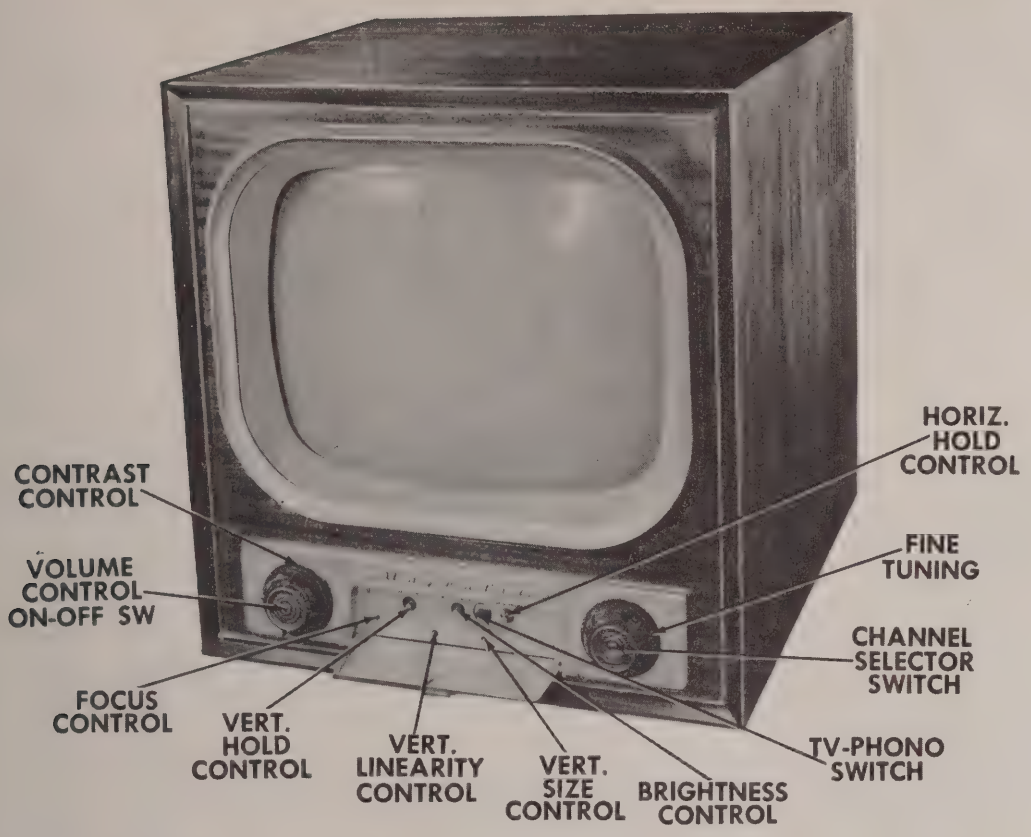
DATE 12-51 SET 153 FOLDER 8

PHOTOFACT* Folder

MAJESTIC MODELS

70, 72, 73, 700, 701, 712, 715, 717, 718, 719, 800, 801, 802, 803, 804



MAJESTIC MODEL 72

TRADE NAME	Majestic Models 70, 72, 73, 700, 701, 712, 715, 717, 718, 719 (Series 106), 800, 801, 802, 803, 804 (Series 108)
MANUFACTURER	Majestic Radio & Television Div. of Wilcox-Gay Corp., 70 Washington St., BROOKLYN, N. Y.
TYPE SET	Television Receiver
TUBES	Nineteen
POWER SUPPLY	110-120 Volts AC - 60 Cycle
RATING	1.6 Amp. at 117 Volts AC
TUNING RANGE	CHANNELS 2 thru 13

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MAJESTIC MODELS
70, 72, 73, 700, 701, 712, 715, 717, 718, 719, 800, 801, 802, 803, 804

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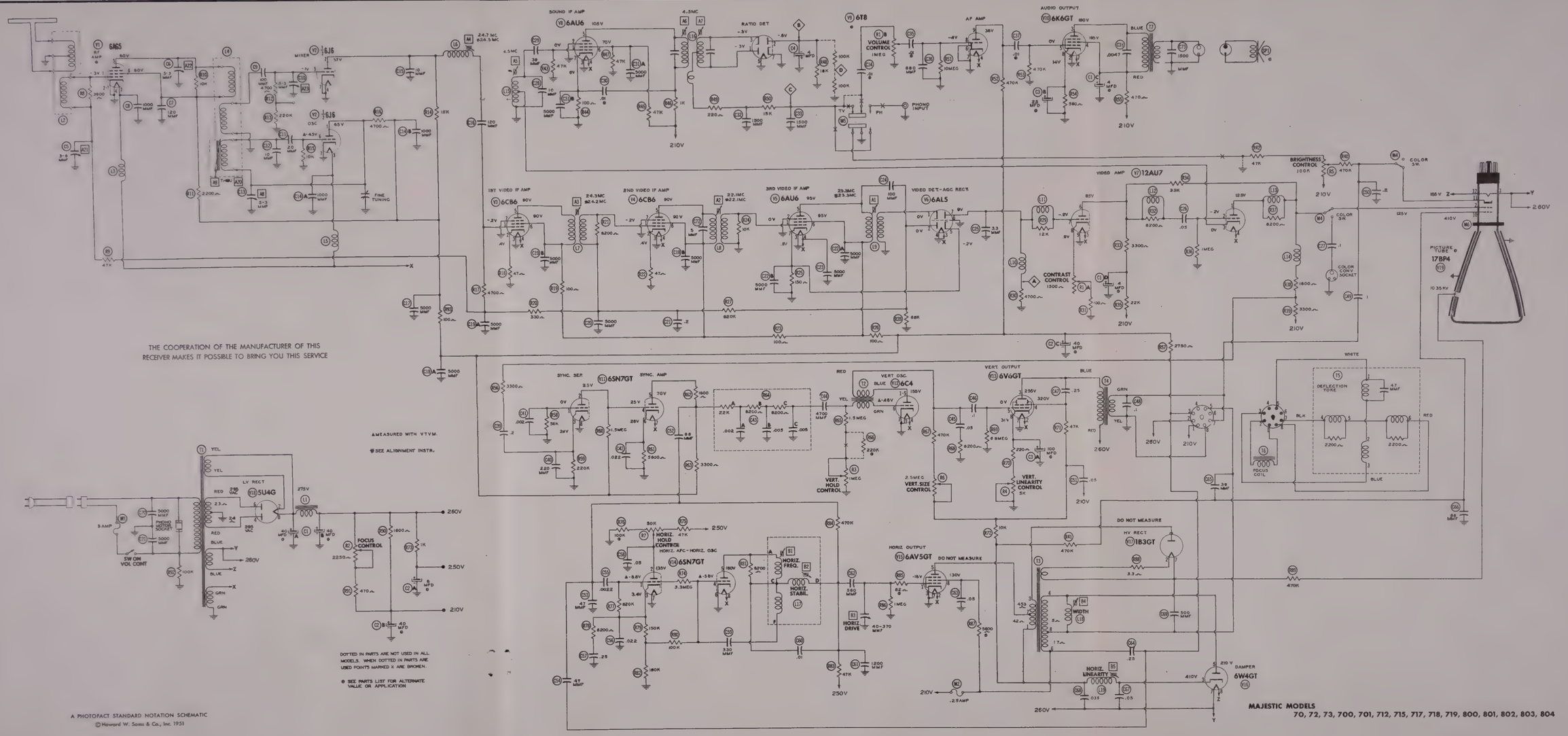
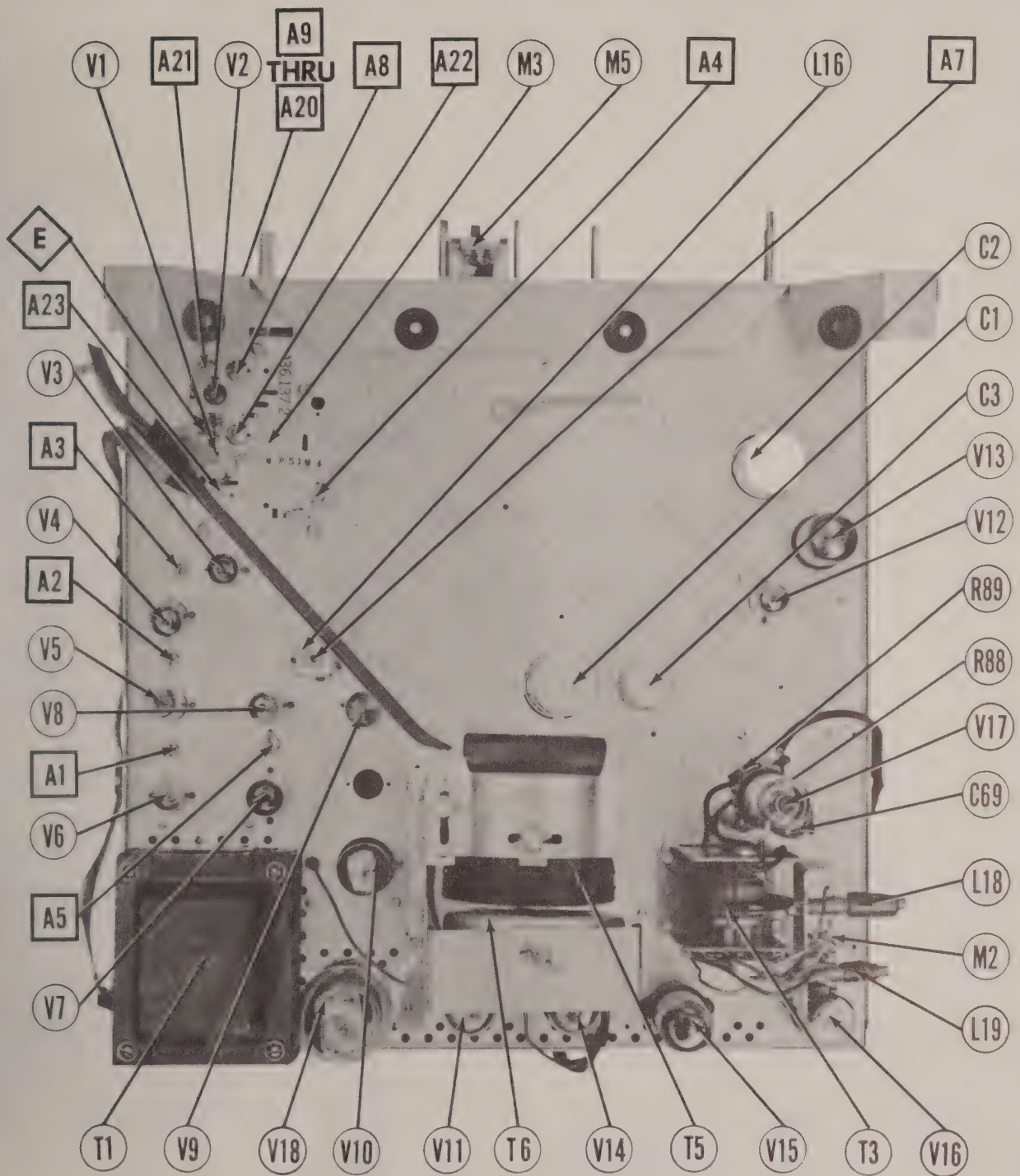
DATE 12-51 SET 153 FOLDER 8

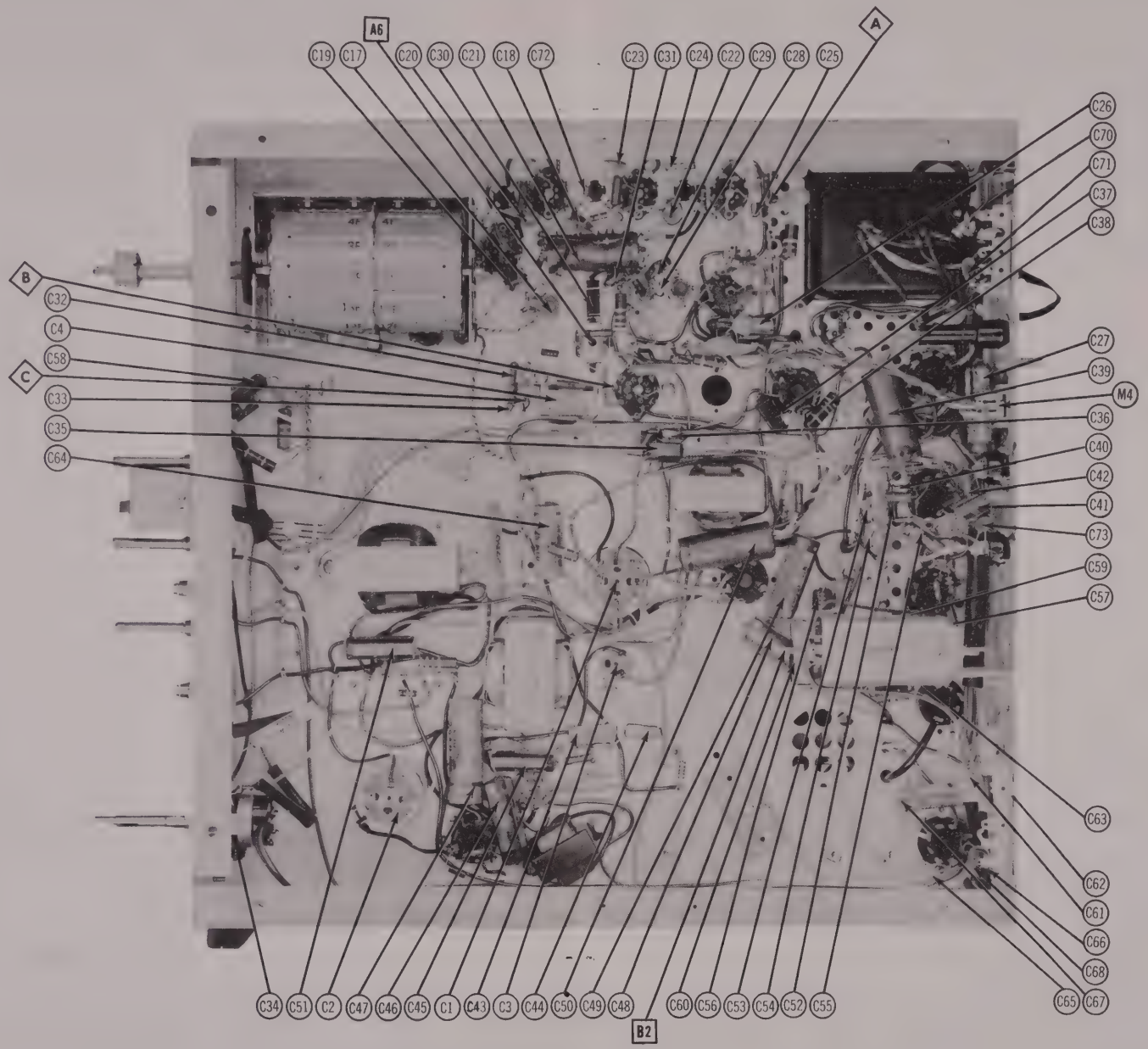


MAJESTIC MODELS
70, 72, 73, 700, 701, 712, 715, 717, 718, 719, 800, 801, 802, 803, 804

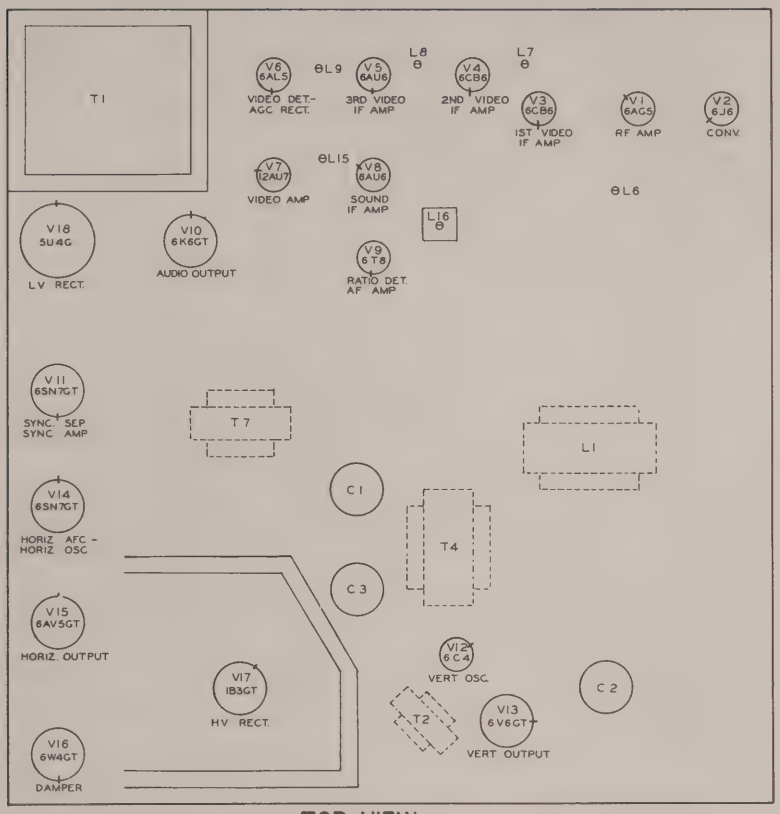
MAJESTIC MODELS
70, 72, 73, 700, 701, 712, 715, 717, 718, 719, 800, 801, 802, 803, 804



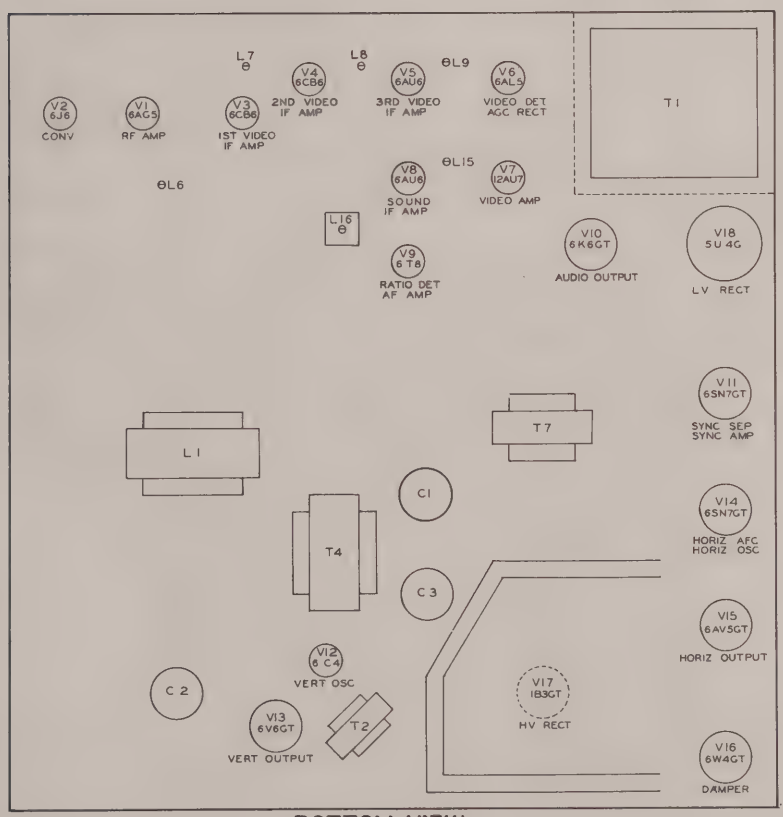
CHASSIS TOP VIEW



CHASSIS BOTTOM VIEW-CAPACITOR AND ALIGNMENT IDENTIFICATION



TOP VIEW



BOTTOM VIEW

TUBE PLACEMENT CHART

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

The end of the high voltage lead should be securely taped and kept away from the chassis; do not remove the horizontal oscillator tube to disable the high voltage.

VIDEO IF ALIGNMENT

Remove the converter tube, (V2), and replace it with a 6J6 which has pin 1 removed, this will disable the local oscillator and prevent the possibility of erroneous indications.
Connect the negative lead of a 3 volt battery to the ungrounded lead of C21, connect the positive lead to chassis.
If no bias supply is available, short C21 and use the frequencies in the table and figures marked by an asterisk (*).

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
1.	Direct	High side to an ungrounded tube shield floating over dummy converter tube (V2). Low side to chassis.	23.3MC *23.3MC	Any	DC probe to Point (A). Common to chassis.	A1	Adjust for maximum deflection.
2.	"	"	22.1MC *22.1MC	"	"	A2	"
3.	"	"	24.3MC *24.2MC	"	"	A3	"
4.	"	"	24.7MC *24.5MC	"	"	A4	"

OVERALL VIDEO IF RESPONSE CHECK

Connect the synchronized sweep voltage from the signal generator to the horizontal input of the oscilloscope for horizontal deflection.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
5.	Direct	High side to an ungrounded tube shield floating over dummy converter tube, (V3). Low side to chassis.	23MC (10MC SWP)	22MC *21.9MC 24.75MC *24.6MC	Any	Vert. Amp. thru 10KΩ to Point (A). Low side to chassis.		Check for response curve similar to figure 1. If necessary retouch A1 thru A4 for proper response.

SOUND IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

Connect two matched 100KΩ (± 1%) resistors in series from Point (B) to chassis. The junction of these two resistors is alignment Point D as shown on the schematic.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
6.	1500MMF	High side to Point A. Low side to chassis.	4.5MC (unmod.)	Any	DC probe to Point (B). Common to chassis.	A5, A6	Adjust for maximum deflection.
7.	"	"	"	"	DC probe to Point (C). Common to Point (D).	A7	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

SOUND IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated signal with 60% modulation and 450KC sweep. Use 120v sawtooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
6.	1500MMF	High side to Point A. Low side to chassis.	4.5MC (450KC SWP)	4.5MC	Any	Vert. Amp. to Point (B). Low side to chassis.	A5, A6	Disconnect stabilizer capacitor C4. Adjust for maximum amplitude and symmetry as per figure 2.
7.	"	"	"	"	"	Vert. Amp. to Point (C). Low side to chassis.	A7	Reconnect capacitor C4. Adjust A7 so 4.5MC occurs at center of crossover lines as per figure 3. SLIGHTLY retouch A6 for maximum amplitude and straightness of crossover lines.

OSCILLATOR ALIGNMENT (STANDARD COIL TUNER)

Remove the dummy converter tube and replace the original 6J6 in its socket.
Complete oscillator alignment may not be necessary. If the oscillator seems to be off frequency approximately the same amount for a majority of the channels it may be possible to correct them in one step using A8. It should be noted that this is an all channel oscillator circuit adjustment and should not be adjusted for any individual channels.
If adjustment of A8 will not bring all channels well within the range of the fine tuning control, it will be necessary to adjust the channel strip adjustment for each channel that is off frequency. The channel strip adjustments are reached through a hole just to the right of the channel switch shaft. The correct adjustment screw is accessible through this hole as the channel switch is turned to each channel.
Connect an external marker generator, set at 24.75MC, to an ungrounded tube shield slipped over the first video IF amplifier.
This marker generator is used to provide a video IF marker on the response curve. The video carrier marker is fed into the set at the antenna and the oscillator adjusted for zero beat of the markers on the video IF response curve.
Connect the synchronized sweep voltage from the signal generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Set the fine tuning control to the mid-position of its range.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
8.	Two 120Ω carbon resistors	Across antenna terminals with 120Ω in each lead.	213MC (10MC SWP)	211.25MC 24.75MC	13	Vert. Amp. to Point (A). Low side to chassis.	A9	Adjust for zero beat between the markers on the response curve.
			207MC (10MC SWP)	(See above) 205.25MC 24.75MC	12		A10	
			201MC (10MC SWP)	199.25MC 24.75MC	11		A11	
			195MC (10MC SWP)	193.25MC 24.75MC	10		A12	
			189MC (10MC SWP)	187.25MC 24.75MC	9		A13	
			183MC (10MC SWP)	181.25MC 24.75MC	8		A14	
			177MC (10MC SWP)	175.25MC 24.75MC	7		A15	
			85MC (10MC SWP)	83.25MC 24.75MC	6		A16	
			79MC (10MC SWP)	77.25MC 24.75MC	5		A17	
			69MC (10MC SWP)	67.25MC 24.75MC	4		A18	
			63MC (10MC SWP)	61.25MC 24.75MC	3		A19	
			57MC (10MC SWP)	55.25MC 24.75MC	2		A20	

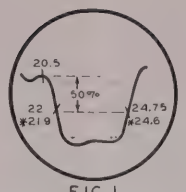


FIG. 1

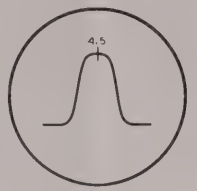


FIG. 2

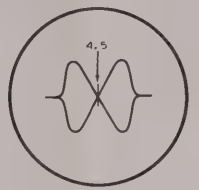


FIG. 3

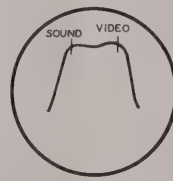


FIG. 4

ALIGNMENT INSTRUCTIONS (CONT.)

RF AND MIXER ALIGNMENT (STANDARD COIL TUNER)

Connect a short across C19A.
Connect the synchronized sweep voltage from the signal generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
9.	Two 120Ω carbon resistors	Across antenna terminal with 120Ω in each lead.	207MC (10MC SWP)	205.25MC 209.75MC	12	Vert. Amp. thru 10KΩ to Point (K). Low side to chassis.	A21, A22, A23	Adjust for response curve similar to figure 4, with markers above 90%.
10.	"	"	213MC (10MC SWP)	211.25MC 215.75MC	13	"		Check all channels for response curve similar to figure 4. If markers fall below 70% on any channel, make slight adjustment of A21, A22, and A23 with channel switch set for that channel. Recheck all channels to see that they have not been seriously effected.
			201MC (10MC SWP)	199.25MC 203.75MC	11			
			195MC (10MC SWP)	193.25MC 197.75MC	10			
			189MC (10MC SWP)	187.25MC 191.75MC	9			
			183MC (10MC SWP)	181.25MC 185.75MC	8			
			177MC (10MC SWP)	175.25MC 179.75MC	7			
			95MC (10MC SWP)	83.25MC 87.75MC	6			
			79MC (10MC SWP)	77.25MC 81.75MC	5			
			69MC (10MC SWP)	67.25MC 71.75MC	4			
			63MC (10MC SWP)	61.25MC 65.75MC	3			
			57MC (10MC SWP)	55.25MC 59.75MC	2			

OSCILLATOR ALIGNMENT (SARKES TARZIAN TUNER)

Remove the dummy converter tube and replace the original 6J6 in its socket.
Connect an external marker generator, set at 24.75MC, to an ungrounded tube shield slipped over the first video IF amplifier. This marker generator is used to provide a video IF marker on the response curve. The video carrier marker is fed into the set at the antenna and the oscillator is adjusted for zero beat of the markers on the video IF response curve.
Connect the synchronized sweep voltage from the signal generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Set the fine tuning control to the mid-position of its range.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
11.	Two 120Ω carbon resistors	Across antenna terminals with 120Ω in each lead.	213MC (10MC SWP)	211.25MC 215.75MC	13	Vert. Amp. thru 10KΩ to Point (A). Low side to chassis.	A24	Adjust for zero beat between markers on response curve.
12.	"	"	207MC (10MC SWP)	205.25MC 209.75MC	12	"	A25	Check all high band channels to see if the markers can be zeroed within 15° rotation either way from center of the fine tuning control range. If not expand or compress turns of appropriate coil.
			201MC (10MC SWP)	199.25MC 203.75MC	11		A26	
			195MC (10MC SWP)	193.25MC 197.75MC	10		A27	
			189MC (10MC SWP)	187.25MC 191.75MC	9		A28	
			183MC (10MC SWP)	181.25MC 185.75MC	8		A29	
			177MC (10MC SWP)	175.25MC 179.75MC	7		A30	
13.	"	"	85MC (10MC SWP)	83.25MC 87.75MC	6		A31	Adjust for zero beat of markers on response curve.
14.	"	"	79MC (10MC SWP)	77.25MC 81.75MC	5		A32	Check all low band channels to see if the markers can be zeroed within 15° rotation either way from center of the fine tuning control range. If not expand or compress turns of the appropriate coil.
			69MC (10MC SWP)	67.25MC 71.75MC	4		A33	
			63MC (10MC SWP)	61.25MC 65.75MC	3		A34	
			57MC (10MC SWP)	55.25MC 59.75MC	2		A35	

RF ALIGNMENT (SARKES TARZIAN TUNER)

Connect a short across C19A.
Connect the synchronized sweep voltage from the signal generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.

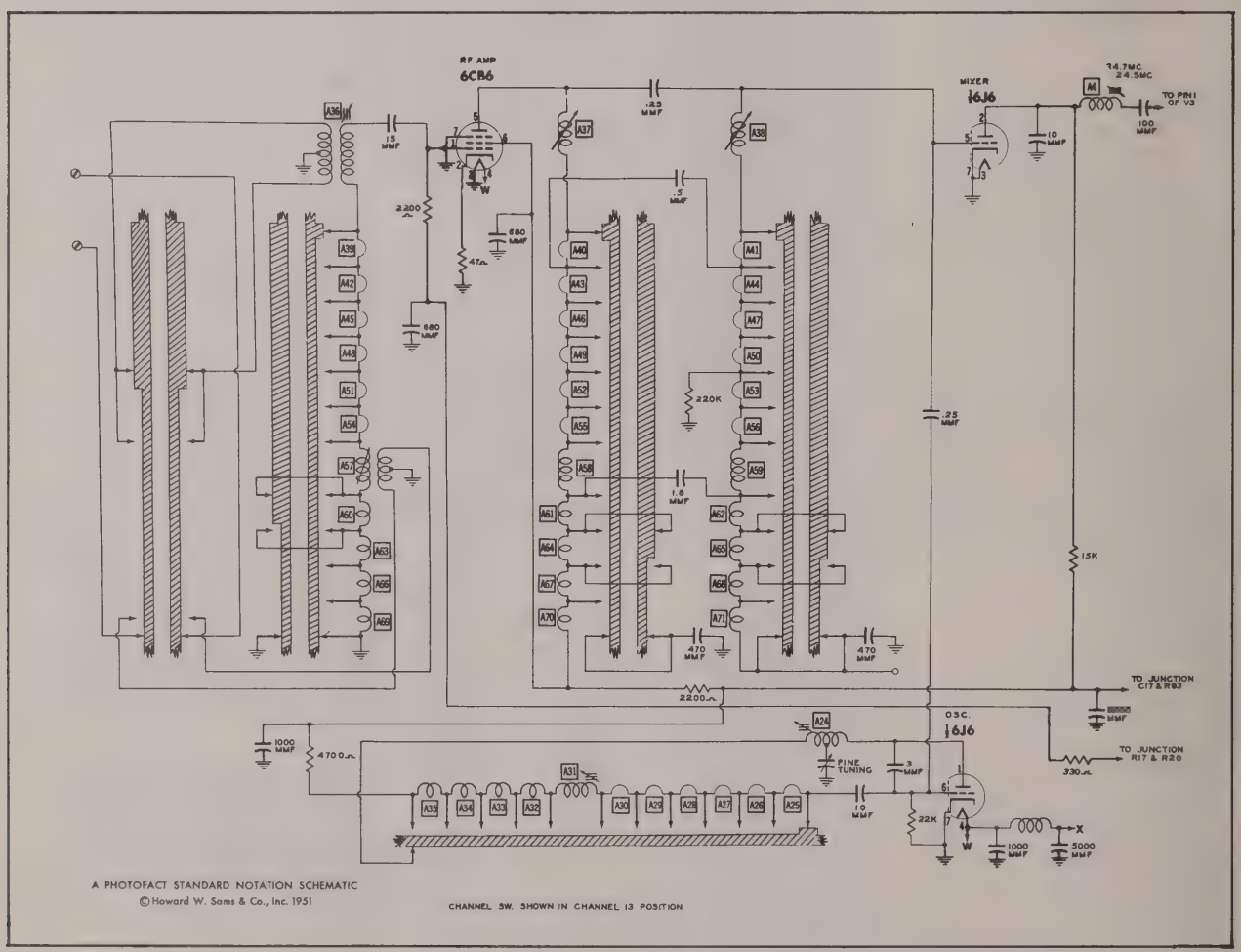
	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
15.	Two 120Ω carbon resistors	Across antenna terminals with 120Ω in each lead.	213MC (10MC SWP)	211.25MC 215.75MC	13	Vert. Amp. thru 10KΩ to Point (F).	A36, A37 A38	Adjust for response curve similar to figure 4. In early production tuners, these adjustments are fixed and should not be adjusted in the field
16.	"	"	207MC (10MC SWP)	205.25MC 209.75MC	12	"	A39, A40 A41	Check all high band channels for response similar to figure 4. If necessary, adjust loops on each channel by moving loop towards, or away from, the wafer. If some channels appear excessively tilted, it may be necessary to make compromise adjustments on the highest channels to obtain best response on all high band channels. When any channel is changed all lower channels will require adjustment.
			201MC (10MC SWP)	199.25MC 203.75MC	11		A42, A43 A44	
			195MC (10MC SWP)	193.25MC 197.75MC	10		A45, A46 A47	
			189MC (10MC SWP)	187.25MC 191.75MC	9		A48, A49 A50	
			183MC (10MC SWP)	181.25MC 185.75MC	8		A51, A52 A53	
			177MC (10MC SWP)	175.25MC 179.75MC	7		A54, A55 A56	
17.	"	"	85MC (10MC SWP)	83.25MC 87.75MC	6	"	A57, A58 A59	Expand or compress coil turns for response curve similar to figure 4. CAUTION: Adjust only heavy-wire secondary winding of A57.
18.	"	"	79MC (10MC SWP)	77.25MC 81.75MC	5	"	A60, A61 A62	Expand or compress coil turns for response similar to figure 4. Bear in mind that when any channel is adjusted, all lower channels will require adjustment.
			69MC (10MC SWP)	67.25MC 71.75MC	4		A63, A64 A65	
			63MC (10MC SWP)	61.25MC 65.75MC	3		A66, A67 A68	
			57MC (10MC SWP)	55.25MC 59.75MC	2		A69, A70 A71	

RESISTANCE MEASUREMENTS

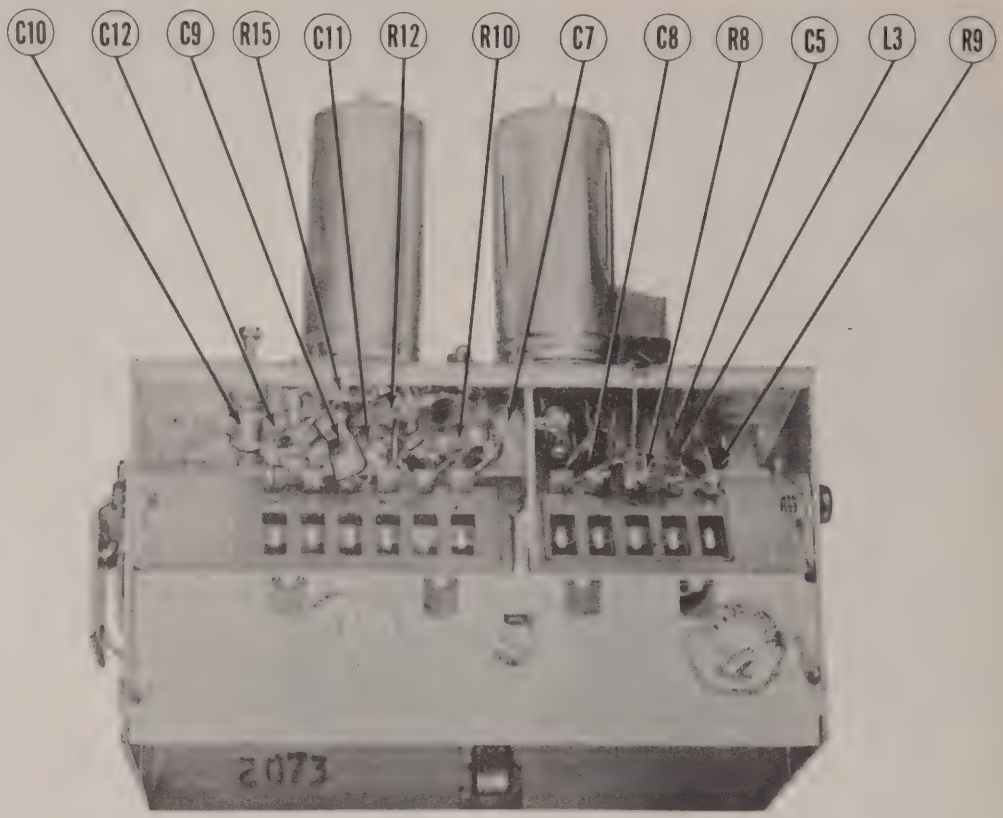
RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6AG5	935KΩ	0Ω	.1Ω	0Ω	†5KΩ	†5KΩ	0Ω		
V 2	6J6	†9KΩ	†19KΩ	.1Ω	0Ω	225KΩ	10KΩ	0Ω		
V 3	6CB6	890KΩ	47Ω	0Ω	.1Ω	†3.4KΩ	†3.4KΩ	0Ω		
V 4	6CB6	890KΩ	47Ω	0Ω	.1Ω	†3.3KΩ	†3.3KΩ	0Ω		
V 5	6AU6	.4Ω	0Ω	0Ω	.1Ω	†3.2KΩ	†3.2KΩ	150Ω		
V 6	6AL5	.4Ω	68KΩ	.1Ω	0Ω	150Ω	0Ω	4.7KΩ		
V 7	12AU7	†5.4KΩ	1Meg	1.3Ω	.1Ω	.1Ω	†16KΩ	4.7KΩ	125Ω	0Ω
V 8	6AU6	47KΩ	0Ω	0Ω	.1Ω	†1.3KΩ	†28KΩ	100Ω		
V 9	6T8	Inf.	18KΩ	Inf.	.1Ω	0Ω	0Ω	0Ω	10Meg	†470KΩ
V 10	6K6GT	Inf.	0Ω	†1.1KΩ	†800Ω	470KΩ	†470KΩ	.1Ω	560Ω	
V 11	6SN7GT	56KΩ	†1.5Meg	220KΩ	†1.5Meg	†8.5KΩ	5600Ω	.1Ω	0Ω	
V 12	6C4	#1.4Meg	0Ω	0Ω	.1Ω	#1.4Meg	1.8Meg	0Ω		
V 13	6V6GT	Inf.	.1Ω	†750Ω	#57KΩ	6.8Meg	2.3KΩ	0Ω	2.6KΩ	
V 14	6SN7GT	1.2Meg	†48KΩ	330KΩ	280KΩ	†49KΩ	0Ω	0Ω	.1Ω	
V 15	6AV5GT	1Meg	.1Ω	0Ω	Inf.	#60Ω	Inf.	0Ω	†5.9KΩ	
V 16	6W4GT	330Ω	Inf.	Inf.	Inf.	†320Ω	■0Ω	■0Ω	■.2Ω	
V 17	1B3GT	PINS 1-8 HAVE INF. RESISTANCE								Top Cap #515Ω
V 18	5U4G	Inf.	36KΩ	Inf.	24Ω	†64Ω	23Ω	†64Ω	36KΩ	
V 19	17AP4A	■0Ω	†5.4KΩ	PIN 10 #470KΩ	PIN 11 †500KΩ	PIN 12 ■.2Ω				

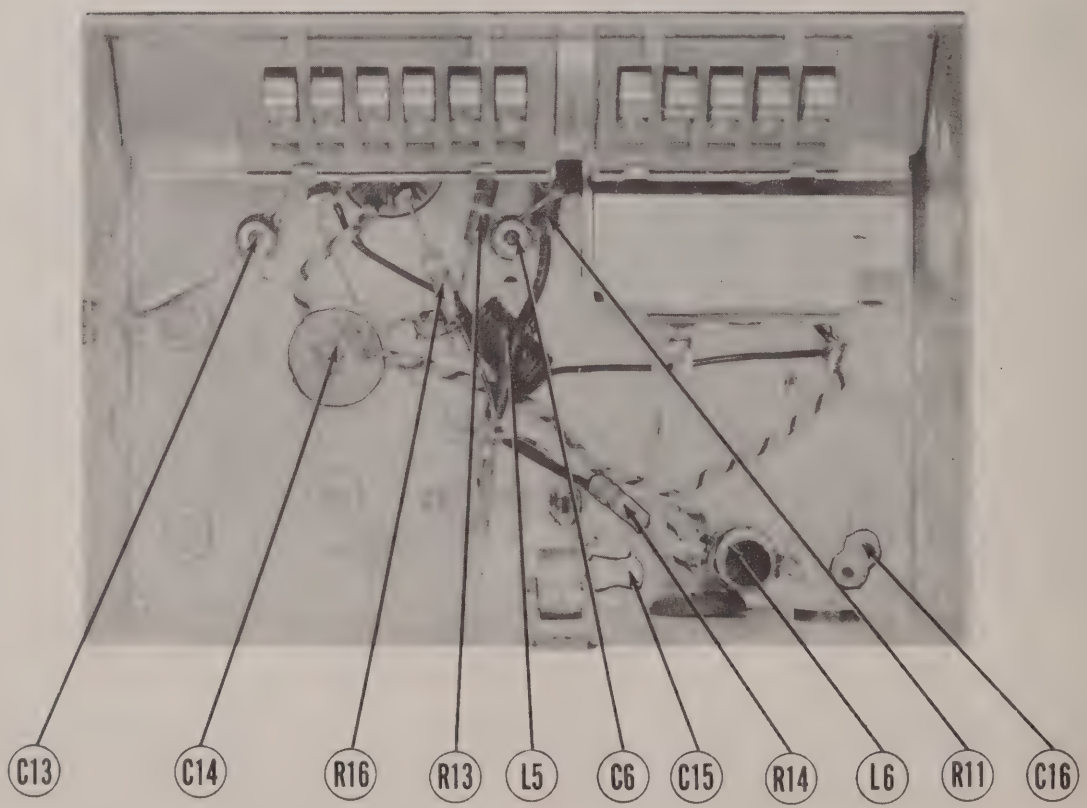
ALL CONTROLS SET FOR NORMAL OPERATION
† MEASURED FROM PIN 8 OF V18
# MEASURED FROM PIN 3 OF V16
■ MEASURED FROM 260VDC LINE



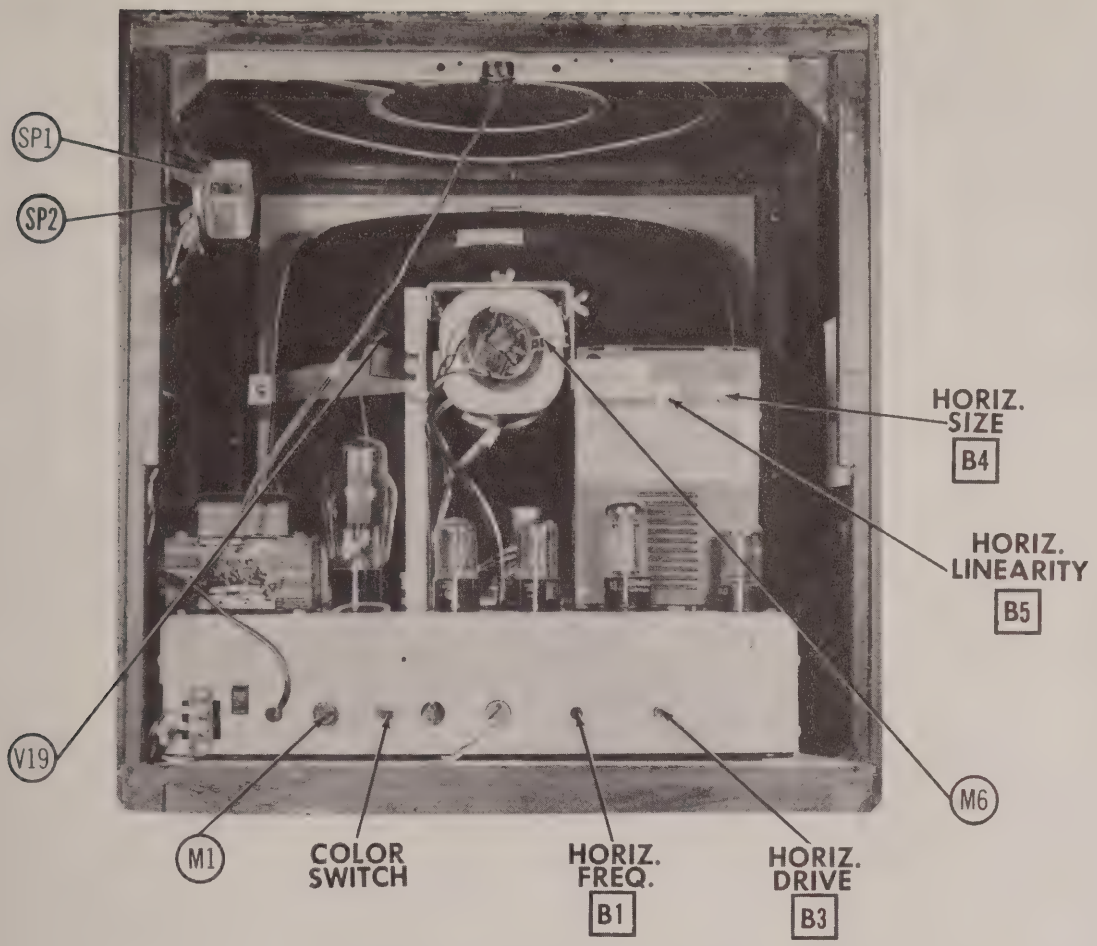
ALTERNATE TUNER SCHEMATIC



RF TUNER-RIGHT SIDE



RF TUNER-BOTTOM VIEW



CABINET-REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Turn the set on and tune in a TV station, preferably a test pattern.
Turn the horizontal hold control to the mid-position of its range.
Adjust the horizontal frequency slug, (B1), until the picture synchronizes horizontally.
Connect the vertical input lead of an oscilloscope, through a 10KΩ resistor, to terminal C of L17, connect the low side to chassis.
Adjust the horizontal stabilizing core, (B2), until the broad and narrow peaks of the waveform on the scope are of equal height as shown in figure 5. If necessary during adjustment of B2, readjust B1 to keep the picture synchronized.
Adjust the horizontal drive trimmer, (B3), counter-clockwise as far as possible without crowding or bright vertical bars appearing in the picture
Adjust the width slug, (B4), until the picture is slightly wider than necessary to fill the mask horizontally.
Adjust the horizontal linearity slug, (B5), until the picture is symmetrical from left to right.
Since both width and horizontal linearity are effected by the drive trimmer, it may be necessary to adjust B3, B4, and B5 alternately for optimum results.

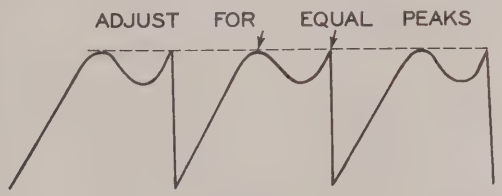


FIG. 5

DISASSEMBLY INSTRUCTIONS

1. Remove four push-on type control knobs.
2. Remove three 1/4" hex head screws from rear cover. Remove rear cover.
3. Disconnect built-in antenna.
4. Disconnect speaker.
5. Remove inter-lock switching arrangement.
6. Remove six metal bolts from chassis. Remove chassis.
7. Remove three 1/4" hex nuts from speaker. Remove speaker.

NOTE: FOR PICTURE TUBE REMOVAL IT IS NECESSARY TO REMOVE THE CHASSIS AS OUTLINED ABOVE.

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: MAJESTIC PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	NOTES
V1A	RF Amplifier	6AG5	6AG5	7BD	
B	RF Amplifier	6BC5	6BC5	7BD	
C	RF Amplifier	6CB6	6CB6	7CM	
V2	Converter	6J6	6J6	7BF	
V3	1st Video IF Amp.	6CB6	6CB6	7CM	
V4	2nd Video IF Amp.	6CB6	6CB6	7CM	
V5	3rd. Video IF Amp.	6AU6	6AU6	7BK	
V6	Video Detector-AGC Rectifier	6AL5	6AL5	6BT	
V7	Video Amplifier	12AU7	12AU7	9A	
V8	Sound IF Amp.	6AU6	6AU6	7BK	
V9	Ratio Detector-AF Amplifier	6T8	6T8	9E	In some productions a 6AL5 and a 6AT6 or 6AV6 is used in place of V9 (6T8)
V10	Audio Output	6K6GT	6K6GT	7S	
V11	Sync. Separator-Sync. Amplifier	6SN7GT	6SN7GT	8BD	
V12	Vert. Oscillator	6C4	6C4	5BG	
V13	Vert. Output	6V6GT	6V6GT	7AC	
V14	Horizontal AFC-Horiz. Oscillator	6SN7GT	6SN7GT	8BD	
V15	Horiz. Output	6AV5GT	6AV5GT	6CK	
V16	Damper	6W4GT	6W4GT	4CG	
V17	HV Rectifier	1B3GT	1B3GT	3C	
V18	LV Rectifier	5U4G	5U4G	5T	

CATHODE-RAY TUBE

ITEM No.	REPLACEMENT DATA: MAJESTIC PART No.	REPLACEMENT DATA: SYLVANIA PART No.	REPLACEMENT DATA: THOMAS PART No.	RTMA BASE TYPE	NOTES
V19A	17AP4A	17BP4A	17BP4	12D	
B	20CP4	20CP4	20CP4	12D	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: MAJESTIC PART No.	REPLACEMENT DATA: AEROVOX PART No.	REPLACEMENT DATA: CENTRALAB PART No.	REPLACEMENT DATA: CORNELL-DUBILIER PART No.	REPLACEMENT DATA: ERIE PART No.	REPLACEMENT DATA: [illegible] PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C1A	40	450	5-435-3	E4D415		UPT420		TVL-3785	▲ Filter ¶
B	40	450						TVA-1702	■ Filter ¶
C	4	450							▲ Audio Output Dec. ††
D	4	450							Decoupling ††
C2A	8	450	5-435-4	AFH3-43		UPT44145		TVL-3785	▲ Decoupling ¶¶
B	40	450							■ Decoupling ¶¶
C	40	450							▲ Decoupling ¶¶
C3A	100	50	5-429-2	AFH3-12		UPT1205		TVL-1320	■ Vert. Output Cathode ¶
B	35	50						TVA-1306	▲ Audio Output Cathode ¶¶
C4	4	50	C-5.430-1	PRS150/4		BR550		TVA-1303	Stabilizing Cap.
C5	3-9				829-10				Variable Trimmer
C6	.5-3				829-3				Variable Trimmer
C7	130				D6-121		GP2K-121	5GA-T12	RF Amp. Dec.
C8	1000				SI1000		GP2L-102	5HK-D1	RF Amp. Fil.
C9	100						GP1K-101	5GA-T1	RF Coupling
C10	.5-3				829-3				Variable Trimmer
C11	20				TCN-20		N750K-200		Osc. Grid Cap. ⁵
C12	10			SI10NP0	TCZ-10		NP0K-100	5TCC-Q1	Fixed Trimmer
C13	.5-3				829-3				Variable Trimmer
C14A	1000			BPD-2X001	DD-2-102		812-001	5HK-2D1	Conv. Fil.
B	1000								RF Bypass
C15	10			SI10NP0	TCZ-10		NP0K-100	5TCC-Q1	Fixed Trimmer
C16	120			SI120	D6-121		GP2K-121	5GA-T12	IF Coupling
C17	5000		B-4.115-1	BPD-005	DD-5-502	ID5D5	811-005	5HK-D5	RF Bypass
C18A	5000		B-4.125-1	BPD-005	DD-2-502	ID5D5	811-005	5HK-D5	RF Bypass
B	5000			BPD-005		ID5D5	811-005	5HK-D5	2nd. Video IF Dec.
C18A	5000		B-4.125-1	BPD-005	DD-2-502	ID5D5	811-005	5HK-D5	AGC Filter
B	5000			BPD-005		ID5D5	811-005	5HK-D5	1st. Video IF Dec.
C20	5000		B-4.115-1	BPD-005	DD-5-502	ID5D5	811-005	5HK-D5	AGC Filter
C21	12	400	D-3.105-23	P488-22		GT4P2		4TM-P22	AGC Filter
C22A	5000		B-4.125-1	BPD-005	DD-5-502	ID5D5	811-005	5HK-D5	3rd. Video IF Dec.
B	5000			BPD-005		ID5D5	811-005	5HK-D5	3rd. Video IF Cathode
C23	5000		B-4.115-1	BPD-005	DD-5-502	ID5D5	811-005	5HK-D5	3rd. Video IF Fil.
C24	68		C-4.109-10	SI100	D6-101	5W5T1	GP1K-101	5GA-T1	IF Coupling
C25	3.3		C-4.111-5	SR3.3NP0	TCZ-3.3		NP0K-3R3		Video Det. Filter
C26	.047	400	D-3.105-19	P488-47		DF-104	PTE6P1	6TM-P1	Video Coupling
C27	.1	600	D-3.105-21	P488-1		DF-104	PTE6P1	6TM-P1	Video Coupling
C28	18		C-4.109-16	SI10	D6-100	5W5Q1	GP1K-100	5GA-Q1	Fixed Trimmer
C29	39	500	D-4.104-2	SL39-500M	D6-390	5W5Q4	GP1K-390	1FM-44	Sound IF Coupling
C30	.01	600	D-3.105-21	P488-91	D6-103	PTE6S1	GP2-333-103	6TM-S1	Sound IF Plate †
C31A	5000		B-4.125-1	B-491-005	DD-2-502	ID5D5	811-005	5HK-D5	Sound IF Screen
B	5000			B-491-005		ID5D5	811-005	5HK-D5	Sound IF Cathode
C32	1500		D-4.108-12	SI1500	D6-152	1W5D15	GP2L-152	5HK-D15	RF Bypass
C33	1500		D-4.108-12	SI1500	D6-152	1W5D15	GP2L-152	5HK-D15	De-emphasis
C34	.01	600	D-3.106-1	P488-91	D6-103	PTE6S1	GP2-333-103	6TM-S1	Audio Coupling ‡
C35	.01	600	D-3.106-1	P488-91	D6-103	PTE6S1	GP2-333-103	6TM-S1	Audio Coupling †
C36	680		C-4.109-5	SI680	D6-681	1W5T7	GP2K-681	5GA-T68	AF Amp. Grid
C37	.01	600	D-3.106-1	P488-91	D6-103	PTE6S1	GP2-333-103	6TM-S1	Audio Coupling ††
C38	.0047	600	B-4.115-1	P488-4747	D6-472	PTE6D5	GP2-333-472	6TM-D47	Audio Output Plate
C39	.22	400	D-3.105-23	P488-22		GT4P2		4TM-P22	Sync. Coupling
C40	220		C-4.109-11	SI220	D6-221	5W5T25	GP2K-221	5GA-T22	Sync. Sep. Cathode
C41	.0022	600	D-3.105-26	P488-2232	D6-222	PTE6D2	GP2-333-222	6TM-D22	Sync. Sep. Grid
C42	.022	400	D-3.105-17	P488-024	DF-203	PTE4S2		4TM-S22	Sync. Amp. Cathode
C43A	.002			P488-902		PTE6D2	GP2-333-202		Vert. Integrator Net.
B	.005		▲10.101	P488-058	▲PC-100	PTE6D5	GP2-333-502	▲101C1	Vert. Integrator Net.
C	.005			P488-058		PTE6D5	GP2-333-502		Vert. Integrator Net.
C44	4700	500	D-4.105-24	SI472-M5		DR5D4		MS-25	Vert. Osc. Grid Cap.
C45	.047	600	D-3.105-34						Vert. Discharge
C46	.1	600	D-3.105-38	P688-1	DF-104	PTE6P1		6TM-P1	Vert. Sweep Coupling
C47	.35	500	D-3.100-32	584-25		GP6P25		6TM-P25	Vert. Output Plate

CAPACITORS (CONT.)

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: MAJESTIC PART No.	REPLACEMENT DATA: AEROVOX PART No.	REPLACEMENT DATA: CENTRALAB PART No.	REPLACEMENT DATA: CORNELL-DUBILIER PART No.	REPLACEMENT DATA: ERIE PART No.	REPLACEMENT DATA: SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C48	.1	600	D-.105-36	P688-1	DF-104	PTE6P1		6TM-P1	Fixed Trimmer
C49	.1	600	D-3.105-36	P688-1	DF-104	PTE6P1		6TM-P1	Vert. Sweep Coupling
C50	.22	400	D-3.105-33	P488-22	"	GT4P2		4TM-P22	Integrator Net.
C51	.047	600	D-3.105-34						Decoupling
C52	68	500	D-4.104-93	1469-00007		5R5Q7		MS-47	Horiz. Sync. Coupling
C53	47		C-4.109-14	SI47NP0	TCZ-47		NP0L-470	5TCC-Q47	Voltage Divider
C54	47		D-4.109-12	SI47	D6-470	5W5Q5	GP1K-470	5GA-Q47	Horiz. Feedback
C55	.0022	600	D-3.105-26	P688-0022	D6-222	PTE6D2	GP2-333-222	6TM-D22	Horiz. Sync. Coupling
C56	.022	400	D-3.105-17	P488-022	DF-203	PTE4S2		4TM-S22	AFC Filter
C57	.25	200	D-3.100-30	P488-25		GT2P25		2TM-P25	AFC Filter
C58	.047	400	D-3.105-19						AFC Plate
C59	330	500	D-4.104-59	1469-00035					Horiz. Osc. Grid Cap.
C60	.01	600	D-3.106-1	P688-01	D6-103	PTE6S1	GP2-333-103	6TM-S1	Fixed Trimmer
C61	1200	500	D-4.105-9						Horiz. Discharge
C62	560	500	D-4.104-70						Horiz. Sweep Coupling
C63	.047	600	B-3.105-34						Horiz. Output Screen
C64	.25	200	D-3.100-30	P488-25		GT2P25		2TM-P25	Horiz. Sweep Coupling
C65	39	2000	B-4.129-2						Horiz. Sweep Coupling
C66	68	2000	B-4.129-4						Voltage Divider
C67	.047	600	D-3.105-34						Damper Filter
C68	.035	600	D-3.100-46						Damper Filter
C69	500	20000	B-4.128	HV20C	TV3-502				HV Filter
C70	5000		B-4.115-1	BPD-005	DD-502	1D5D5	811-005	5HK-D5	Line Filter
C71	5000		B-4.115-1	BPD-005	DD-502	1D5D5	811-005	5HK-D5	Line Filter
C72	4.7		C-4.111-6	SI4.7NP0	TCZ-4.7		NP0K-4R7		Fixed Trimmer
C73	1500		D-4.108-12	SI1500	D6-152	1W5D15	GP2L-152	5HK-D15	Fixed Trimmer

† Some models use 5000MMF. in this application. (Part # B-4.115-1)
‡ Some models use .047MFD. in this application. (Part # D-3.105-19)
†† Some models use .022MFD. in this application. (Part # D-3.105-17)
¶ Some models combine C1A, C1B and C3A in one unit. (Part # 5.435-1)
¶¶ Some models combine C2A, C2B, C2C and C3B in one unit. (Part # 5.435-2)
‡‡ Some models use cardboard tubulars in this application. (Part # 5.418)
♦ Items C43A, C43B, C43C, R64A, R64B, R64C are combined in one unit.

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: MAJESTIC PART No.	REPLACEMENT DATA: IRC PART No.	REPLACEMENT DATA: CLAROSTAT PART No.	REPLACEMENT DATA: CENTRALAB PART No.	INSTALLATION NOTES
R1A	1500Ω	½	C-8.230-1	Concentrikit B11-109 †	RTV-233		Contrast Control - Panel
B	1Meg	½		B13-137 †			Volume Control and Switch - Rear
C	Shaft end			E-187 †			Attach per instructions in Concentrikit.
D	Switch			76-1			Attach per instructions in Concentrikit.
R2	2250Ω	4	C-8.221		RTV-9		Focus Control - Wire Wound
R3A	1Meg	½	C-8.229-8	PQ13-137	AG-63-Z	B-70	Vertical Hold Control
B	Shaft		Not req.	Not req.	RS-2	Not req.	Attach to R3A per instructions
R4	5000Ω	2	C-8.206-6		43-5000		Vertical Linearity Control - Wire Wound
R5A	100KΩ	½	D-8.229-9	PQ11-128	AG-49-S	B-40	Brightness Control
B	Shaft		Not req.	Not req.	RS-2	Not req.	Attach to R5A per instructions
R6A	2.5Meg	½	C-8.219-5	QU1-239	AG-84-S	AN-83	Vertical Size Control
B	Shaft		Not req.	Not req.	RS-2	Not req.	Attach to R5A per instructions
R7A	50KΩ	½	C-8.229-7	PQ13-123	AG-46-Z	B-32	Horiz. Hold Control
B	Shaft		Not req.	Not req.	RS-2	Not req.	Attach to R7A per instructions

† Additional parts to be used with Concentrikit.

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: MAJESTIC PART No.	REPLACEMENT DATA: IRC PART No.	IDENTIFICATION CODES ALL RESISTORS ± 10% UNLESS OTHERWISE SPECIFIED
R8	3900Ω	½		BTS-3900	Antenna Coil Shunt
R9	47KΩ 20%	½		BTS-47K	AGC Network
R10	10KΩ 20%	½		BTS-10K	RF Coil Shunt
R11	2200Ω	½		BTS-2200	RF Amp. Decoupling
R12	4700Ω	½		BTS-4700	Mixer Grid
R13	220KΩ	½		BTS-220K	Mixer Grid
R14	15KΩ	½		BTS-15K	Mixer Plate
R15	10KΩ	½		BTS-10K	Osc. Grid
R16	4700Ω	½		BTS-4700	Osc. Plate
R17	4700Ω	½	D-7.101-44	BTS-4700	1st. Video IF Amp. Grid
R18	47Ω 20%	½	D-7.101-240		1st. Video IF Amp. Cathode
R19	100Ω	½	D-7.101-226	BTS-100	1st. Video IF Amp. Decoupling
R20	330Ω 20%	½	D-7.101-237	BTS-330	AGC Network
R21	8200Ω	½	D-7.101-55	BTS-8200	2nd. Video IF Transformer Shunt
R22	47Ω 20%	½	D-7.101-240		2nd. Video IF Amp. Cathode
R23	100Ω	½	D-7.101-226	BTS-100	Decoupling
R24	10KΩ	½	D-7.101-58	BTS-10K	3rd. Video IF Amp. Grid
R25	150Ω	½	D-7.101-204	BTS-150	3rd. Video IF Amp. Cathode
R26	100Ω	½	D-7.101-226	BTS-100	Decoupling
R27	820KΩ	½	D-7.101-138	BTS-820K	AGC Network
R28	68KΩ	½	D-7.101-93	BTS-68K	AGC Rectifier Diode Load
R29	12KΩ	½	D-7.101-62	BTS-12K	Peaking Coil Shunt
R30	4700Ω	½	D-7.101-44	BTS-4700	Video Detector Diode Load
R31	100Ω	½	D-7.101-226	BTS-100	Video Detector Cathode
R32	8200Ω	½	D-7.101-55	BTS-8200	Peaking Coil Shunt
R33	3300Ω	½	D-7.101-37	BTS-3300	Video Amp. Plate
R34	33KΩ	½	D-7.101-80	BTS-33K	Voltage Divider
R35	22KΩ	2	D-7.103-143	BTB-22K	Video Amp. Plate Decoupling
R36	1Meg 20%	½	D-7.101-42	BTS-1Meg	Video Amp. Grid
R37	8200Ω 5%	½	D-7.101-55	BTS-8200	Peaking Coil Shunt
R38	1800Ω	1	D-7.102-34	BTA-1800	Video Amp. Plate
R39	3300Ω	2	D-7.103-108	BTB-3300	Video Amp. Plate
R40	470KΩ	½	D-7.101-129	BTS-470K	Picture Tube Cathode
R41	470KΩ	½	D-7.101-129	BTS-470K	Acc. Anode Load
R42	47KΩ	½	D-7.101-87	BTS-47K	Voltage Divider
R43	47KΩ	½	D-7.101-87	BTS-47K	Sound IF Amp. Grid
R44	100Ω	½	D-7.101-226	BTS-100	Sound IF Amp. Cathode
R45	47KΩ	½	D-7.101-87	BTS-47K	Sound IF Amp. Screen
R46	1000Ω 5%	½	D-7.101-47	BTS-1000	Sound IF Amp. Plate Decoupling
R47	47KΩ	½	D-7.101-87	BTS-47K	Voltage Divider
R48	18KΩ 5%	½	D-7.101-69		Ratio Detector Diode Load
R49	220Ω 20%	½	D-7.101-234	BTS-220	Balancing

RESISTORS (CONT.)

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: MAJESTIC PART No.	REPLACEMENT DATA: IRC PART No.	IDENTIFICATION CODES
R50	15KΩ 20%	½	D-7.101-66	BTS-15K	De-emphasis
R51	10Meg 20%	½	D-7.101-192	BTS-10Meg	AF Amp. Grid
R52	470KΩ 20%	½	D-7.101-129	BTS-470K	AF Amp. Plate
R53	470KΩ	½	D-7.101-129	BTS-470K	Output Grid
R54	560Ω	1	D-7.102-13	BTA-560	Output Cathode
R55	470Ω	1	D-7.102-10	BTA-470	Output Decoupling
R56	3300Ω	1	C-7.101-38	BTS-3300	Isolation
R57	2750Ω	10	B-6.211-4		Decoupling
R58	56KΩ	½	D-7.101-90	BTS-56K	Sync. Separator Grid
R59	220KΩ	½	D-7.101-114	BTS-220K	Sync. Separator Cathode
R60	1.5Meg	½	D-7.101-148	BTS-1.5Meg	Sync. Separator Plate
R61	5600Ω	½	D-7.101-48	BTS-5600	Sync. Amp. Cathode
R62	1800Ω 20%	½	D-7.101-27	BTS-1800	Sync. Amp. Plate
R63	33000Ω 20%	½	D-7.101-38	BTS-3300	Sync. Amp. Plate
R64A	22KΩ	½		BTS-22K	Integrator Network
B	8200 Ω	½	10.101 ♦	BTS-8200	Integrator Network
C	8200 Ω	½		BTS-8200	Integrator Network
R65	1.5Meg	½	D-7.101-148	BTS-1.5Meg	Vertical Osc. Grid
R66	220KΩ	½	D-7.101-115	BTS-220K	Vertical Osc. Grid - See Note 1
R67	470KΩ 20%	½	D-7.101-129	BTS-470K	Vertical Osc. Plate
R68	8200Ω	½	D-7.101-55	BTS-8200	Vertical Peaking
R69	6.8Meg 20%	½	D-7.101-185	BTS-6.8Meg	Vertical Output Grid
R70	220Ω 20%	2	D-7.101-234	BTS-220	Vertical Output Cathode
R71	47KΩ 20%	1	D-7.102-94	BTA-47K	Vertical Output Screen
R72	10KΩ	½	D-7.101-59	BTS-10K	Voltage Divider
R73	1000Ω	1	D-7.102-24	BTA-1000	Decoupling
R74	3.3Meg	½	D-7.101-171	BTS-3.3Meg	Horiz. Feedback
R75	47KΩ	1	D-7.102-94	BTA-47K	AFC Plate
R76	100KΩ	1	D-7.102-108	BTA-100K	Voltage Divider - See Note 2
R77	820KΩ	½	D-7.101-138	BTS-820K	AFC Filter
R78	8200Ω	½	D-7.101-55	BTS-8200	AFC Filter
R79	150KΩ	½	D-7.101-107	BTS-150K	AFC Filter
R80	100KΩ	½	D-7.101-99	BTS-100K	Horiz. Osc. Grid
R81	8200Ω	½	D-7.101-55	BTS-8200	Horiz. Osc. Coil Shunt
R82	180KΩ	½	D-7.101-111	BTS-180K	Voltage Divider
R83	47KΩ 20%	1	D-7.102-94	BTA-47K	Horiz. Osc. Plate
R84	470KΩ	½	D-7.101-129	BTS-470K	Horiz. Feedback
R85	82Ω	½			Parasitic Suppressor - See Note 3
R86	1Meg	½	D-7.101-142	BTS-1Meg	Horiz. Output Grid
R87	5600Ω	2	D-7.103-118	BTB-5600	Horiz. Output Screen - See Note 2
R88	3.3Ω	½	C-6.212-1		HV Filament - Wire Wound
R89	470KΩ	1	D-7.102-137		HV Filter
R90	1800Ω	2	D-7.103-97	BTB-1800	Focus Coil Shunt
R91	47Ω	10	C-6.215-5		Focus Coil Shunt
R92	100KΩ	½	D-7.101-100	BTS-100K	Line Isolation
R93	100Ω	½	D-7.101-226	BTS-100	Decoupling

♦ Items R64A, R64B, R64C, C43A, C43B, C43C, are combined in one unit.
Note 1 Not used in all models.
Note 2 Some models use resistors in parallel to obtain desired value.
Note 3 Some models use 100Ω resistor in this application.

TRANSFORMER (POWER)

ITEM No.	RATING: PRI.	RATING: SEC. 1	RATING: SEC. 2	RATING: SEC. 3	REPLACEMENT DATA: MAJESTIC PART No.	REPLACEMENT DATA: STANCOR PART No.	REPLACEMENT DATA: MERIT PART No.	REPLACEMENT DATA: CHICAGO PART No.
T1	117VAC ④ 1.6A	600VCT .220ADC	5VAC ④ 3A	6.3VAC ④ 1.8A 6.3VAC ④ 6A	D-9252	P6315① & P5014②	P-3070	

① Add series resistor to reduce plate voltage if necessary.
② Mount beneath chassis where space permits.

TRANSFORMER (SWEEP CIRCUITS)

ITEM No.	RATING: DC RESISTANCE PRI.	RATING: DC RESISTANCE SEC.	REPLACEMENT DATA: MAJESTIC PART No.	REPLACEMENT DATA: STANCOR PART No.	REPLACEMENT DATA: MERIT PART No.	REPLACEMENT DATA: CHICAGO PART No.	NOTES
T2	160Ω	1.3KΩ	C-9.230-4				Vert. Block Osc. Trans.
T3	495Ω Tap 42Ω	22Ω Tap 17Ω SEC. 2 0Ω	C-9.253-1-2				Horiz. Output Trans.
T4	700Ω	7.5Ω	C-9.228-5	A-8112	A-3036	TSO-5 ③	Vert. Output Trans.
T5A	18Ω		C-9.254-3	DY-8	MDF-70		Horiz. Deflection Coils
B	64Ω						Vert. Deflection Coils
T6	370Ω		C-9234-4	FC-10	MF-3		Focus Coil

③ Drill one new mounting hole.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: MAJESTIC PART No.	REPLACEMENT DATA: STANCOR PART No.	REPLACEMENT DATA: MERIT PART No.	REPLACEMENT DATA: CHICAGO PART No.	INSTALLATION NOTES
T7	7.8KΩ	4.1Ω	450Ω	.7Ω	C-9225-3C	A-3020 ③	RO-16 ③	RO-16 ③	③ Drill one new mounting hole.

PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			NOTES
	FIELD RES.	V. C. IMP.	MAJESTIC PART No.	VIKING PART No.	QUAM PART No.	
SP1A	PM	3-4Ω	E30.326 ④	5J4	5A1	④ Used in table models.
B	PM	3-4Ω	C30.328 ⑤	10J12	10A4A	⑤ Used in console models.
	CONE DIA.	V. C. DIA.				
SP2A	5"	9/16"				
B	10"	1"				

FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA				INSTALLATION NOTES
	TOTAL DIRECT CURRENT	D. C. RESISTANCE	INDUCTANCE (0 CURRENT 1000 ~)	MAJESTIC PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	
L1	.200A	64Ω	3.2Henries	C-9.237-3	C-2325 ③	C-2974 ③	TR4200 ③	③ Drill one new mounting hole.

COILS (RF-IF)

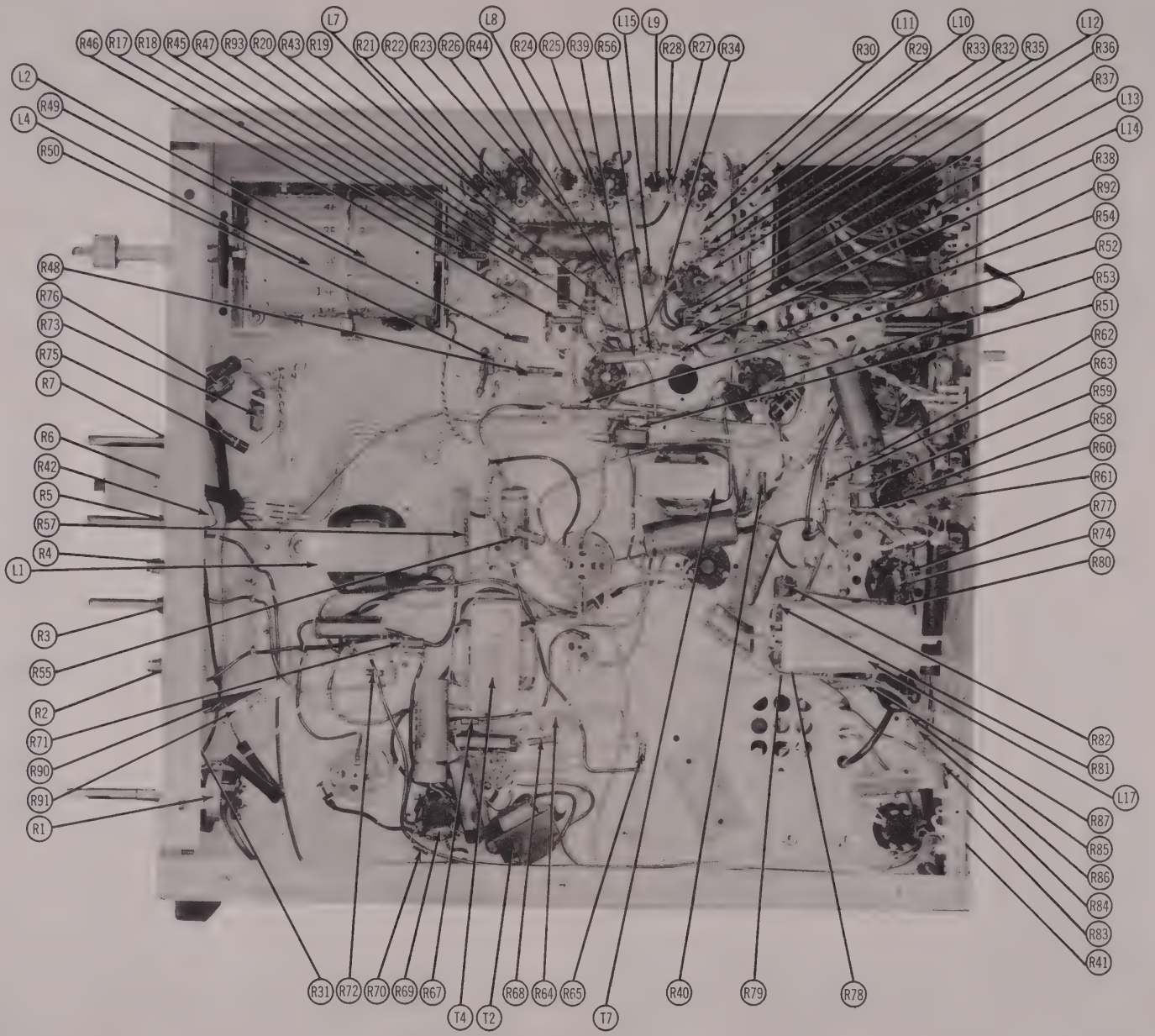
ITEM No.	USE	DC RES.		REPLACEMENT DATA		NOTES
		PRI.	SEC.	MAJESTIC PART No.		
L2	Ant. Coil	0Ω	0Ω	B-36.141-2		Channel # 2 } Part of Tuner Part # D-36.137-2
L3	Fil. Choke	0Ω				
L4	RF, Mixer Grid & Osc. Coils	0Ω		B-36.141-102		Channel # 2
L5	Fil. Choke	0Ω				
L6	1st. Video IF	.9Ω				
L7	2nd. Video IF	.4Ω	.4Ω	C-1.476		
L8	3rd. Video IF	.4Ω	.4Ω	C-1.476		
L9	4th. Video IF	.4Ω	.4Ω	C-1.476		
L10	Peaking	8Ω		C-1.522-3		Blue Dot
L11	Peaking	6.8Ω		C-1.522-4		Yellow Dot
L12	Peaking	6.8Ω		C-1.522-4		Yellow Dot
L13	Peaking	6.8Ω		C-1.522-4		Yellow Dot
L14	Peaking	6.8Ω		C-1.522-4		Yellow Dot
L15	Sound IF	3.5Ω		C-1.529-2		Tap 2.2Ω
L16	Ratio Det. Trans.	4Ω	1.2Ω	C-1.528-1		Tap 1.2Ω
L17	Horiz. Osc.	130Ω	36Ω	B-1.549		
L18	Horiz. Size	31Ω		B-1.553-1		
L19	Horiz. Lin.	21Ω		B-1.531		

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA				REMARKS
			MAJESTIC PART No.		LITTELFUSE PART No.		
			FUSE	HOLDER	FUSE	HOLDER	
M1	3AG	3A		B-36.131	312003	341001	
M2	3AG Pigtail	.250A			318.250		

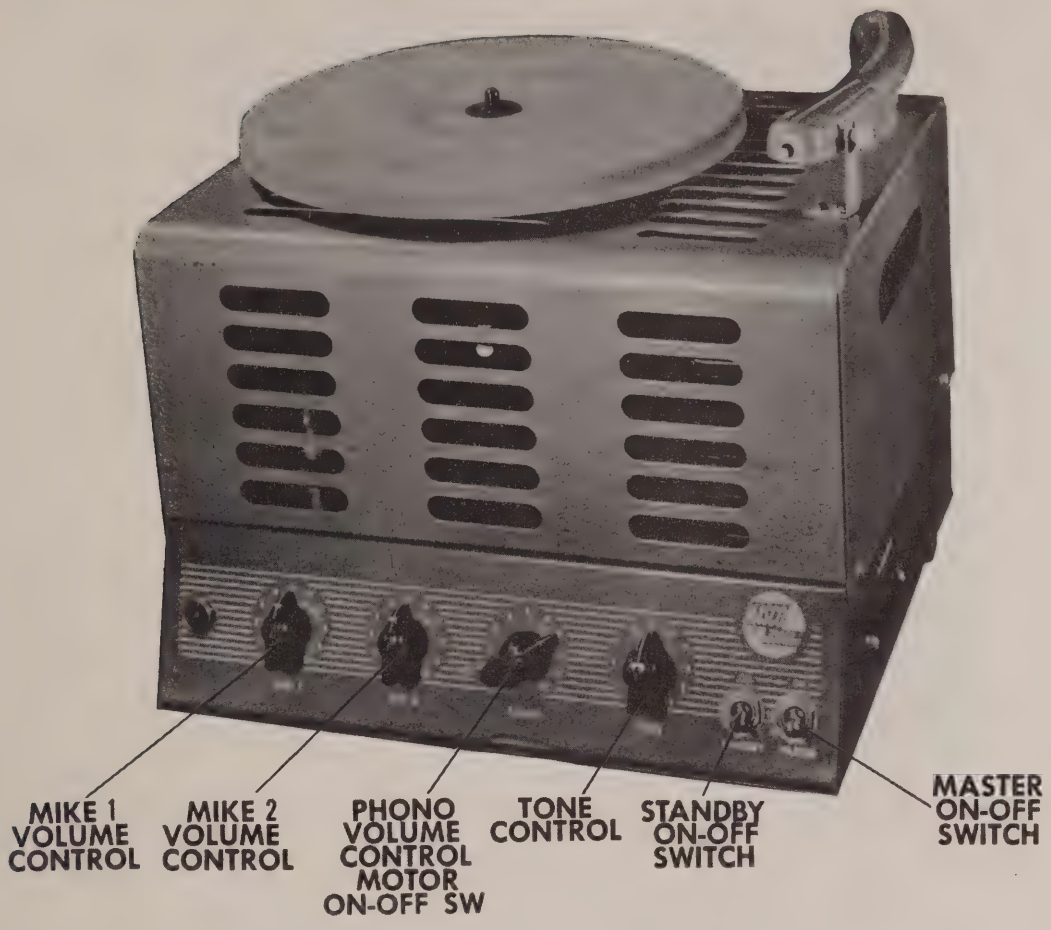
MISCELLANEOUS

ITEM No.	PART NAME	MAJESTIC PART No.	NOTES
M3A	RF Tuner	D-36.137-2	
B	RF Tuner	E-36.143	Alternate
M4	Switch		Color
M5	Switch		TV-Phono
M6	Ion Trap		
B3	Trimmer	B-4.119-2	40-370MMF. (Horiz. Drive)
	Ant. Coil	B-36.141-3	Channel # 3
		B-36.141-4	Channel # 4
		B-36.141-5	Channel # 5
		B-36.141-6	Channel # 6
		B-36.141-7	Channel # 7
		B-36.141-8	Channel # 8
		B-36.141-9	Channel # 9
		B-36.141-10	Channel # 10
		B-36.141-11	Channel # 11
		B-36.141-12	Channel # 12
		B-36.141-13	Channel # 13
	RF, Mixer Grid & Oscillator Coil	B-36.141-103	Channel # 3
		B-36.141-104	Channel # 4
		B-36.141-105	Channel # 5
		B-36.141-106	Channel # 6
		B-36.141-107	Channel # 7
		B-36.141-108	Channel # 8
		B-36.141-109	Channel # 9
		B-36.141-110	Channel # 10
		B-36.141-111	
		B-36.141-112	
		B-36.141-113	



CHASSIS BOTTOM VIEW-RESISTOR AND INDUCTOR IDENTIFICATION

MASCO
MODEL MM-27P



MASCO
MODEL MM-27P

TRADE NAME	Masco, Model MM-27P
MANUFACTURER	Mark Simpson Mfg., Co., Inc., 32-28 49th. St., Long Island City 3, New York
TYPE SET	AC or Battery Operated Audio Amplifier
TUBES (SIX)	Types 6SC7 Mic. 1 and 2 Pre-Amp., 6SJ7 1st. AF Amp., 6SC7 2nd. AF Amp., - Phase Inv. (2) 6L6G Power Output, 5V4G Rectifier
POWER SUPPLY	110-120 Volts AC or 6Volt Storage Battery
RATING	1.2 Amp. at 117 Volts AC or 9.4 Amp. at 6.3 Volts DC

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed." "Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1951 by Howard W. Sams & Co., Inc., Indianapolis, Indiana, U. S. of America. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc." Printed in U. S. of America

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: MASCO PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RTMA BASE TYPE	INSTALLATION NOTES
V1	Mic. # 1 Pre-Amp.-				
	Mic. # 2 Pre-Amp.	6SC7	6SC7	8S	
V2	1st. AF Amplifier	6SJ7	6SJ7	8N	
V3	2nd. AF Amplifier-				
	Phase Inverter	6SC7	6SC7	8S	
V4	Power Output	6L6G	6L6G	7AC	
V5	Power Output	6L6G	6L6G	7AC	
V6	Rectifier	5V4G	5V4G	5L	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: MASCO PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C1	16	450		PRS450/16		BR1645A		TVA-1708	Filter
C2A	10	450		AFH3-31		UP1l145		TVL-3776	▲ Decoupling
B	10	450							■ Decoupling
C	10	450							▲ Decoupling
C3	10	50		PRS50/10		BR105		TVA-1304	Output Cathode
C4	2	600		630D-2.0		DYR6200		BP-206	Phono Motor Filter
C5	.0047	600		P688-0047	D6-472	PTE6D5	GP2-333-472	6TM-D47	Audio Coupling †
C6	.0047	600		P688-0047	D6-472	PTE6D5	GP2-333-472	6TM-D47	Audio Coupling †
C7	.01	600		P688-01	D6-103	PTE6S1	GP2-333-103	6TM-S1	Audio Coupling
C8	.01	600		P688-01	D6-103	PTE6S1	GP2-333-103	6TM-S1	Audio Coupling
C9	.01	600		P688-01	D6-103	PTE6S1	GP2-333-103	6TM-S1	Audio Coupling
C10	.01	600		P688-01	D6-103	PTE6S1	GP2-333-103	6TM-S1	Tone Comp.
C11	.02	600		P688-02	DF-203	PTE6S2		6TM-S2	Audio Coupling
C12	.02	600		P688-02	DF-203	PTE6S2		6TM-S2	Audio Coupling
C13	.5	200		P288-5		GT2P5		2TM-P5	Hash Filter
C14	.1	600		P688-1	DF-104	PTE6P1		6TM-P1	Hash Filter
C15	.1	600		P688-1	DF-104	PTE6P1		6TM-P1	Hash Filter
C16	.006	1600		P1688-006		PTE16D6		MB-D6	Buffer Cap.
C17	.1	600		P688-1	DF-104	PTE6P1		6TM-P1	Hash Filter
C18	.1	600		P688-1	DF-104	PTE6P1		6TM-P1	Line Filter

† Some models use .005MFD. in this application.

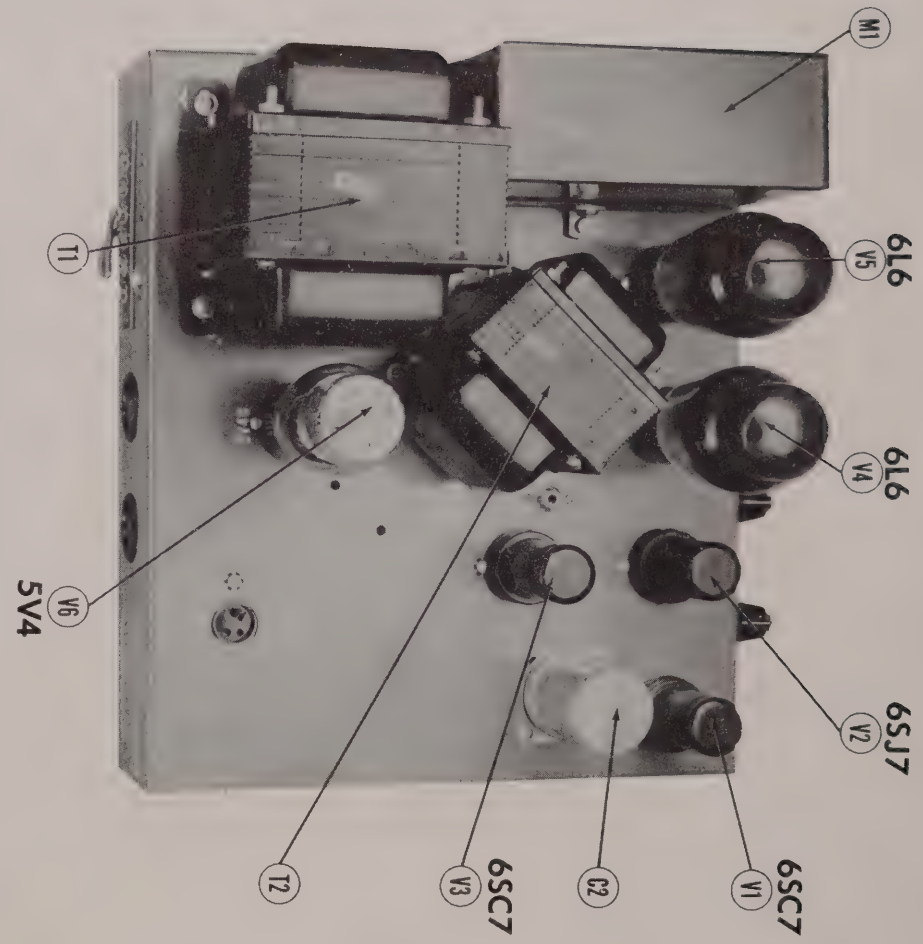
CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: MASCO PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	INSTALLATION NOTES
R1A	500KΩ	½	33-010-188	Q13-133	AG-60-Z	B-60	Mike 1 Volume Control
B	Shaft		Not req.	Not req.	RS-2	Not req.	Attach to R1A per instructions
R2A	500KΩ	½	33-010-188	Q13-133	AG-60-Z	B-60	Mike 2 Volume Control
B	Shaft		Not req.	Not req.	RS-2	Not req.	Attach to R2A per instructions
R3A	500KΩ	½	33-011-182	Q13-133	AG-60-Z	B-60-S	Phono Volume Control
B	Shaft		Not req.	Not req.	RS-2	Not req.	Attach to R3A per instructions
C	Switch	½	Not req.	76-1	SWB	Not req.	Attach to R3A per instructions
R4A	500KΩ	½	33-010-188	Q13-133	AG-60-Z	B-60	Tone Control
B	Shaft		Not req.	Not req.	RS-2	Not req.	Attach to R4A per instructions

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: MASCO PART No.	IRC PART No.	IDENTIFICATION CODES
R5	5.6Meg	½		BTS-5.6Meg	Mike 1 Pre-Amp. Grid - See Note 1
R6	270KΩ	½		BTS-270K	Mike 1 Pre-Amp. Plate
R7	5.6Meg	½		BTS-5.6Meg	Mike 2 Pre-Amp. Grid - See Note 1
R8	270KΩ	½		BTS-270K	Mike 2 Pre-Amp. Plate
R9	270KΩ	½		BTS-270K	Isolation
R10	270KΩ	½		BTS-270K	Isolation
R11	1Meg	½		BTS-1Meg	Isolation
R12	1000Ω	½		BTS-1000	1st. AF Amp. Cathode
R13	47KΩ	½		BTS-47K	1st. AF Amp. Plate
R14	12KΩ	½		BTS-12K	Decoupling
R15	12KΩ	½		BTS-12K	Decoupling
R16	1000Ω	½		BTS-1000	2nd. AF Amp. - Phase Inv. Cathode
R17	47KΩ	½		BTS-47K	2nd. AF Amp. Plate
R18	47KΩ	½		BTS-47K	Phase Inv. Plate
R19	10KΩ	½		BTS-10K	Phase Inv. Grid - See Note 2

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

R20	270KΩ	½		BTS-270K	Output Grid
R21	270KΩ	½		BTS-270K	Output Grid
R22	200Ω	10		1 3/4A-200	Output Cathode - Wire Wound
R23	5000Ω	10		1 3/4A-5000	Filter - Wire Wound
R24	82Ω	1			Hash Suppressor - See Note 3

Note 1 Some models use 15Meg resistor in this application.
Note 2 Some models use 12KΩ resistor in this application.
Note 3 Some models use 75Ω resistor in this application.

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA			
	PRI.	SEC. 1	SEC. 2	SEC. 3	MASCO PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.
T1	117VAC @ 1.2A or 6.3VDC @ 9.5A	720VCT .150ADC	5VAC @2A	6.3VAC @3.65A	P-25M			

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		MASCO PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	
	PRI.	SEC.	PRI.	SEC.					
T2	10KΩ CT	2Ω 4Ω 8Ω 15Ω 500Ω	240Ω CT	.4Ω .5Ω .7Ω .9Ω 21Ω	0-25	A-3311 ①			① Drill new mounting holes.

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA	
		PRI.	SEC.	MASCO PART No.	
L1	Fil. Choke	0Ω			

VIBRATOR

ITEM No.	TYPE	INPUT VOLTS	FREQUENCY	REPLACEMENT DATA			INSTALLATION NOTES
				MASCO PART No.	CORNELL-DUBILIER PART No.	RADIART PART No.	
M1	INT.	6.3V	60∿	491	491	491	

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA				REMARKS
			MASCO PART No.		LITTELFUSE PART No.		
			FUSE	HOLDER	FUSE	HOLDER	
M2	3AG	3A			312003	341001	

PHONO CARTRIDGE

ITEM No.	REPLACEMENT DATA						REMARKS
	MASCO PART No.	ASTATIC PART No.		SHURE PART No.		ELECTRO-VOICE PART No.		
		CARTRIDGE	NEEDLE	CARTRIDGE	NEEDLE	CARTRIDGE	NEEDLE	
M3		L-71-A *510-QT		W58A *93A		12 *2312	O-3 or S-3	*Tone Arm

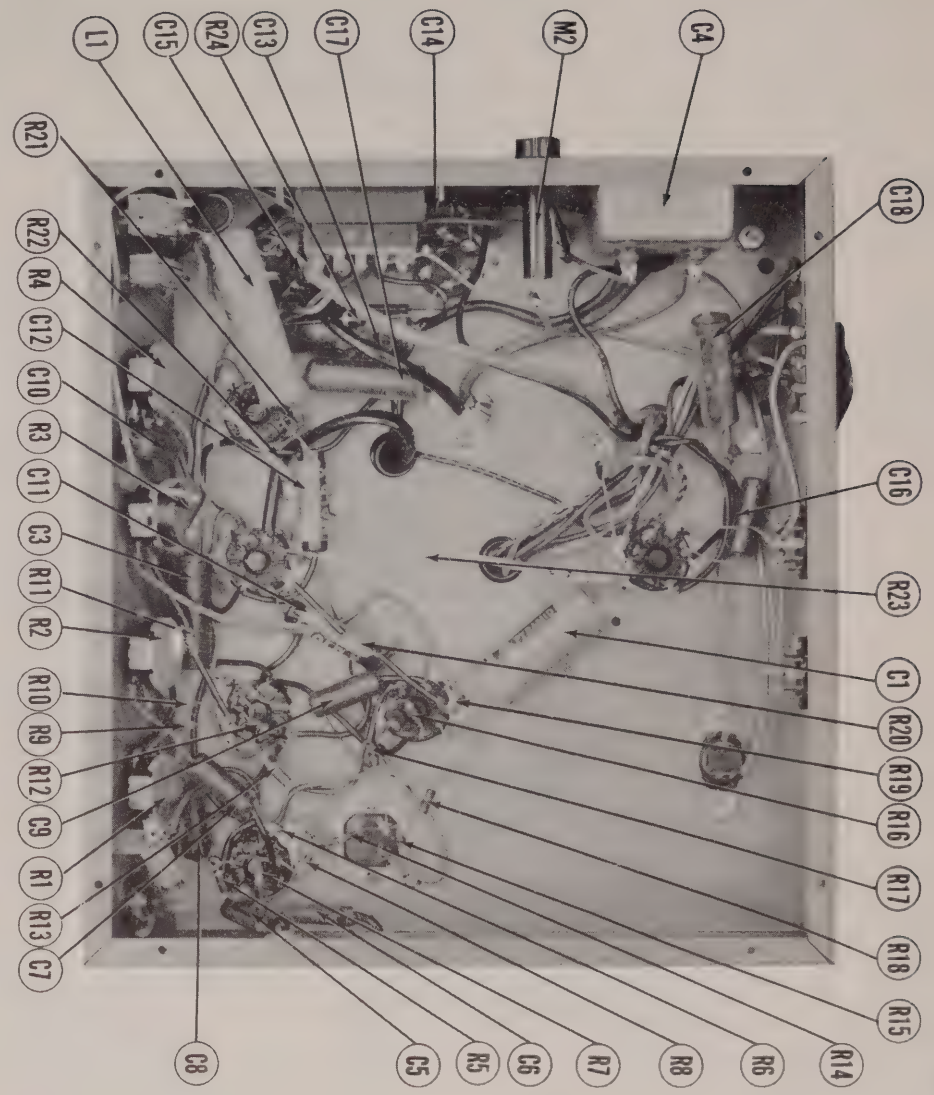
ELECTRO-VOICE NEEDLE LISTING SHOWN ABOVE IS SPECIFIED FOR THE RESPECTIVE REPLACEMENT CARTRIDGE LISTED. FOR ORIGINAL CARTRIDGE NEEDLE REPLACEMENT SEE BELOW.

PHONO NEEDLE

(FOR REPLACEMENT IN ORIGINAL EQUIPMENT CARTRIDGE)

ITEM No.	REPLACEMENT DATA		REMARKS
	MASCO PART No.	WALCO PART No.	
M4			

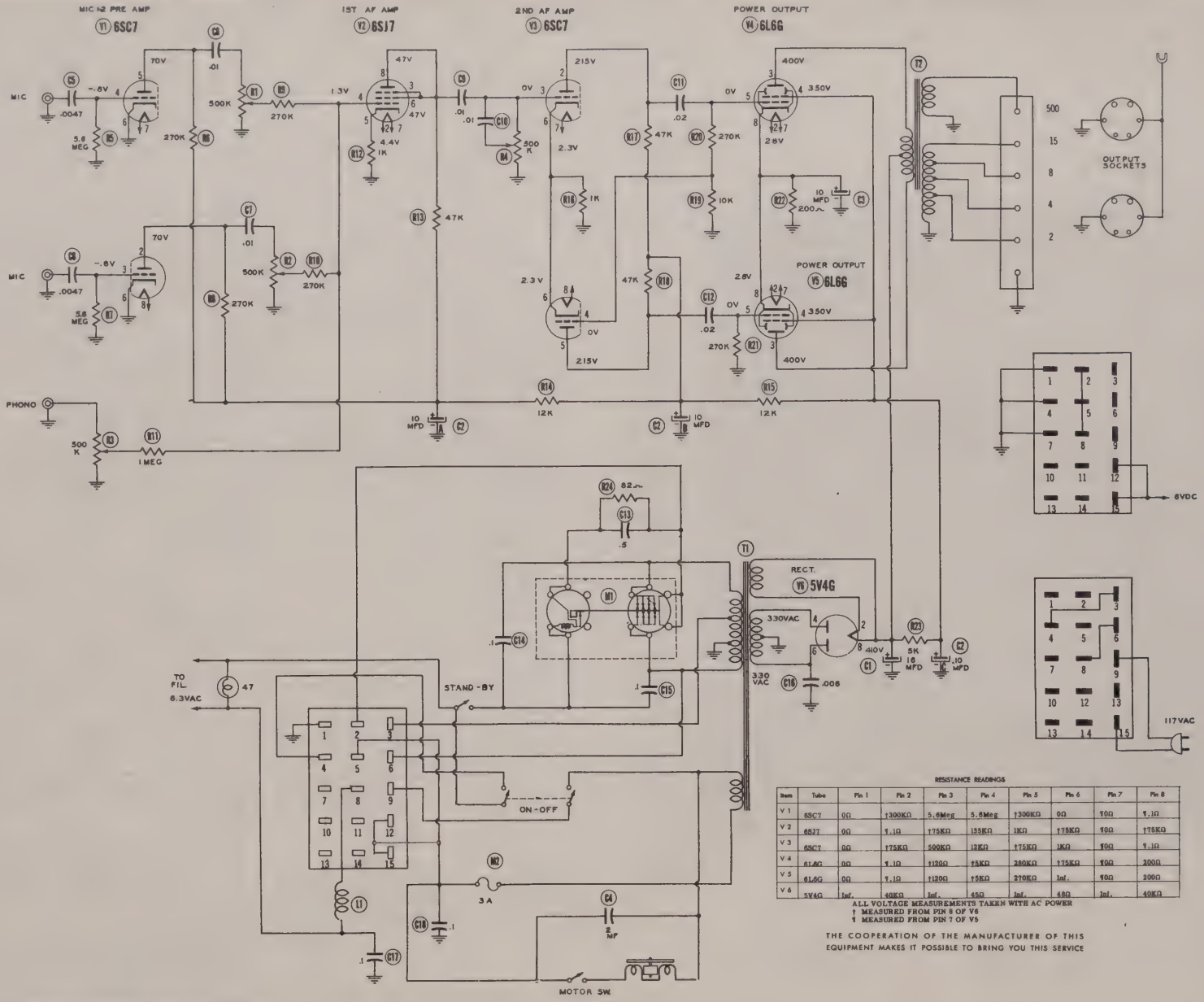
CHASSIS—BOTTOM VIEW



SET 153 FOLDER 9

MASCO MODEL MM-27P

MASCO MODEL MM-27P



RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
V 1	6SC7	0Ω	†300KΩ	5.6Meg	5.6Meg	†300KΩ	0Ω	†0Ω	¶.1Ω
V 2	6SJ7	0Ω	¶.1Ω	†75KΩ	135KΩ	1KΩ	†75KΩ	†0Ω	†75KΩ
V 3	6SC7	0Ω	†75KΩ	500KΩ	12KΩ	†75KΩ	1KΩ	†0Ω	¶.1Ω
V 4	6L6G	0Ω	¶.1Ω	†120Ω	†5KΩ	280KΩ	†75KΩ	†0Ω	200Ω
V 5	6L6G	0Ω	¶.1Ω	†120Ω	†5KΩ	270KΩ	Inf.	†0Ω	200Ω
V 6	5V4G	Inf.	40KΩ	Inf.	45Ω	Inf.	48Ω	Inf.	40KΩ

ALL VOLTAGE MEASUREMENTS TAKEN WITH AC POWER
† MEASURED FROM PIN 8 OF V6
¶ MEASURED FROM PIN 7 OF V5

THE COOPERATION OF THE MANUFACTURER OF THIS EQUIPMENT MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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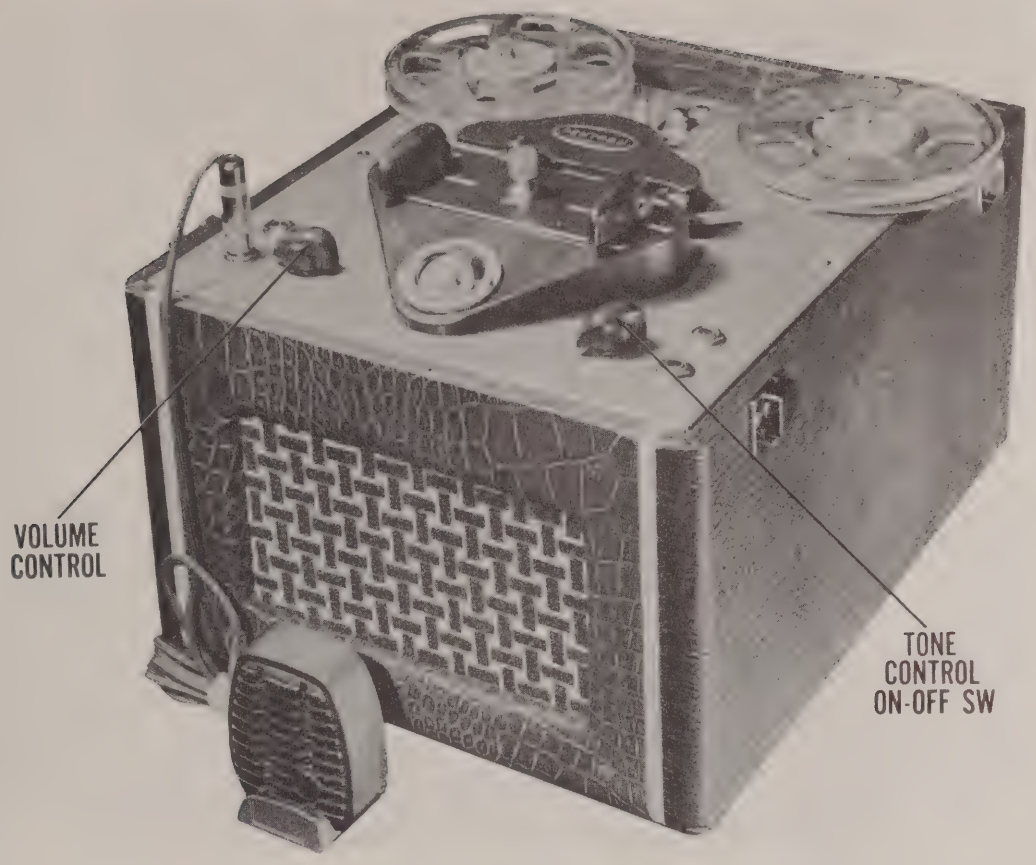
153-9

1 - DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1000 ohms per volt.
2 - Socket connections are shown as bottom views.
3 - Measured values are from socket pin to common negative.
4 - Line voltage maintained at 117 volts for voltage readings.
5 - Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
6 - All controls at minimum, proper output load connected.

PENTRON
MODEL 9T3



PENTRON
MODEL 9T3

Figure 1

GENERAL INFORMATION

The Pentron Model 9-T3 Recorder is designed to magnetically record on a standard 7-inch reel of 1/4-inch wide tape, two tracks instead of one, which doubles the playing time with no loss in frequency response or quality. Recordings may be made at the speeds of 3.75-inches per second or 7.5-inches per second.

The Pentron 9-T3 has two amplifier controls; "On-Off-Tone" control and "Volume" control. There are two mechanical controls "Record-Play" and "Wind-Rewind." This unit includes two inputs; "Radio" and "Microphone" and two outputs; "External Amplifier" and "External Speaker."

This unit operates on 110 Volts, 60 Cycle, AC. only. Use of any other supply directly into the unit will result in serious damage to the amplifier unit.

Manufactured by:

The Pentron Corporation
221 East Collerton
Chicago 16, Illinois

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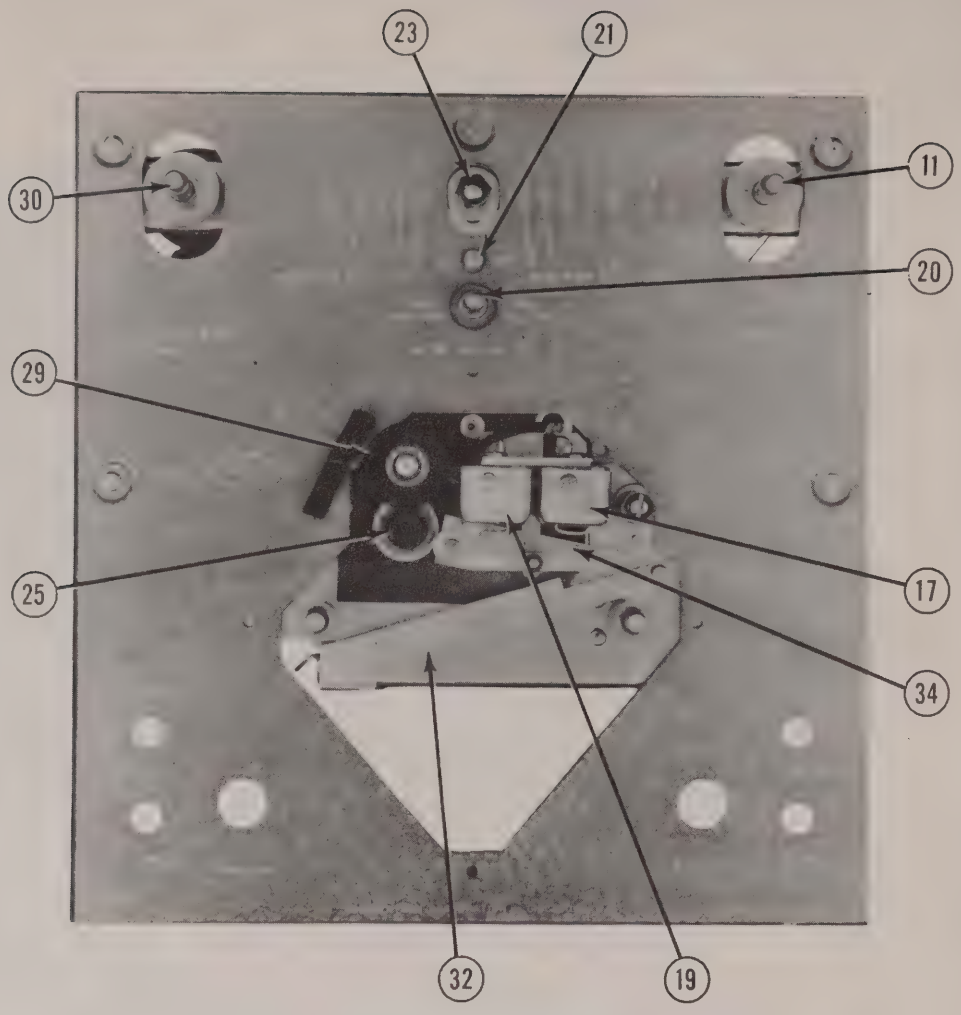


Figure 2

OPERATING INSTRUCTIONS

To Prepare the Pentron for Recording -

1. Remove the lid from the carrying case.

2. Plug the power cord into a convenient receptacle of the proper rating.

3. Place a reel of tape on the "Feed Reel" spindle (11) so that it unwinds in a clockwise direction.

4. Place an empty reel on the "Take-Up Reel" spindle (30). Be sure that both reels are engaged with the drive pins on the spindles.

NOTE: When threading the tape, the dull, magnetic coated side of the tape should face the center of the reel. If the recording tape to be used has the coated side facing outward, place the full reel on the left hand spindle so the tape will unwind in counterclockwise direction. Place an empty reel on the right hand spindle. Thread the tape on the empty reel sothe magnetic coating will face inward; then rewind the tape. Proceed as in steps 3 and 4.

5. Pull about two feet of tape from the supply spool and insert the loose end of the tape into one of the slots in the take-up reel. Hold the tape in this position and rotate the reel in a clockwise direction until the tape is engaged.

6. Now drop the tape into the slot in front of the recording head and between the capstan (25) and pressure roller (29).

7. Rotate the take-up reel until all the slack in the tape is removed.

8. Grasp the knurled motor release pin (20) and pull it to the out position. This engages the motor with the flywheel.

NOTE: When the recorder is not in use always push the motor release pin (20) down. This disengages the motor pulley from the flywheel, thereby preventing bumps or dents in the rubber surface of the flywheel which results in rough operation.

Microphone Recording -

1. With the recorder properly threaded as described above, plug the microphone into the Mic. Jack.

2. Turn the "Tone" control switch clockwise to the "On" position. This supplies power to the amplifier and the motor.

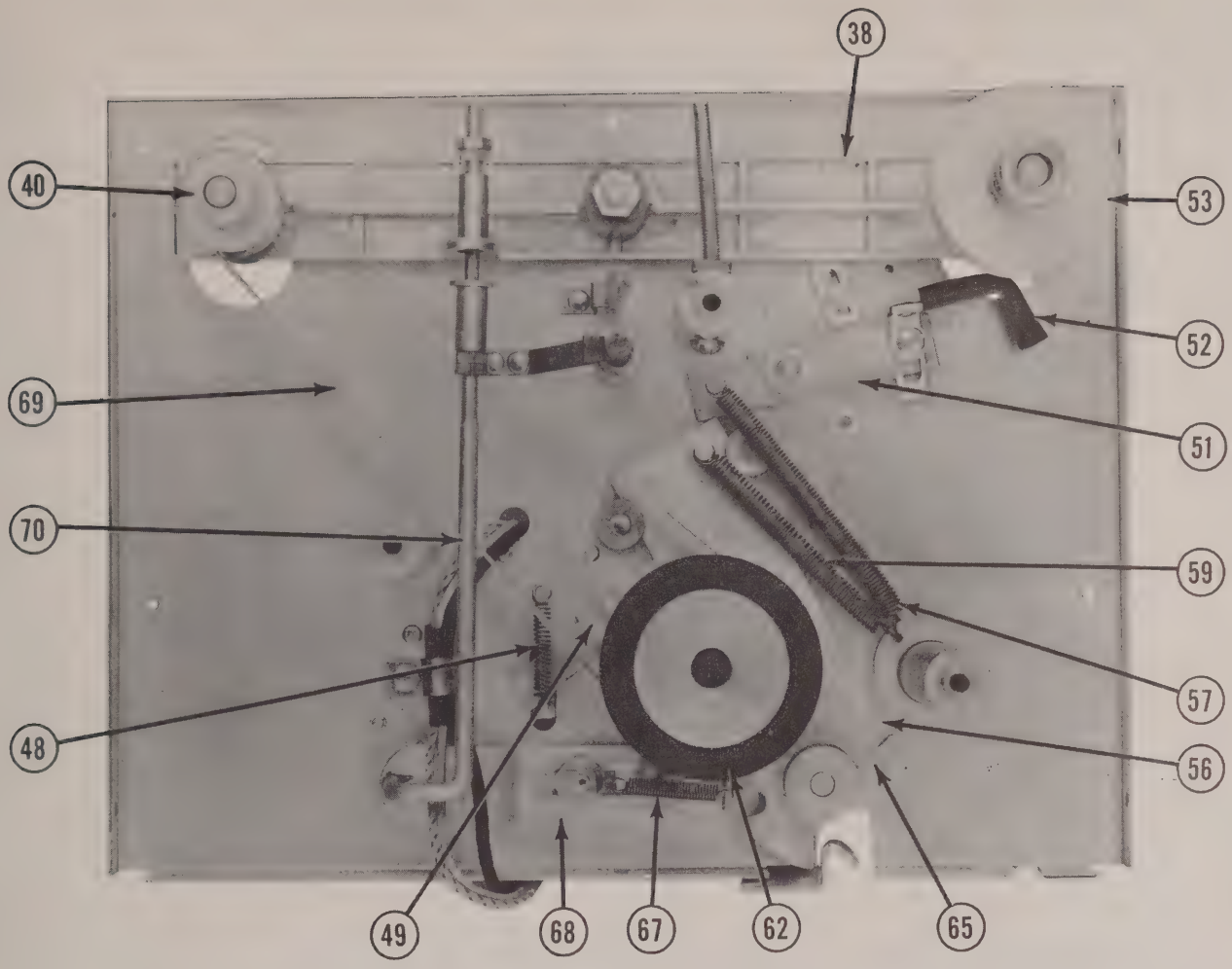


Figure 3

NOTE: When a green glow appears in the Volume Indicator Eye, the unit will be ready to make a recording.

3. Before making a recording it is generally advisable to set the volume before starting to record. To do this, hold down the lock button (8) and while talking into the microphone in a natural tone, adjust the "Volume" control until the eye closes on the loudest portion of the signal.

4. While holding the lock button in the down position, turn the "Play-Record" knob (2) to "Record." A recording is now being made and whatever sound enters the microphone will be recorded on the tape.

To Record Directly from Radio or Phonograph -

1. To record from radio or phonograph, set the controls the same as for "Microphone Recordings."

2. Plug the phonograph or radio tuner into the "Radio" input jack. A recording is now being made on the tape.

NOTE: When recording from an external source, such as FM, AM, or phono pickup, the program may be heard by plugging earphones into the amplifier jack.

Dual Track Recording -

1. After a reel of tape has been recorded a second track may be recorded on the same reel, which doubles the playing time with no loss of frequency response or quality. This is done by removing the full reel from the take-up spindle (30), turning it over and placing it on the feed reel spindle (11). The empty reel will then be placed on the take-up spindle.

2. After the reels have been replaced, properly thread the tape and proceed with the recording.

3. After this track has been recorded, the first track of recording is ready to be played without rewinding.

4. To play the first track of recording, place the full reel on the right hand spindle (11), making sure it unwinds clockwise, and the empty reel on the left hand spindle.

5. Thread the tape, then set the controls as described under "To Play a Recording."

To Play a Recording -

1. With the tape properly threaded, turn the "Tone" control switch on and wait until the "Volume Indicator Eye" lights up.

2. Turn the "Play-Record" knob (2) to "Play."

3. Adjust the Volume and Tone controls to suit.

Wind and Rewind -

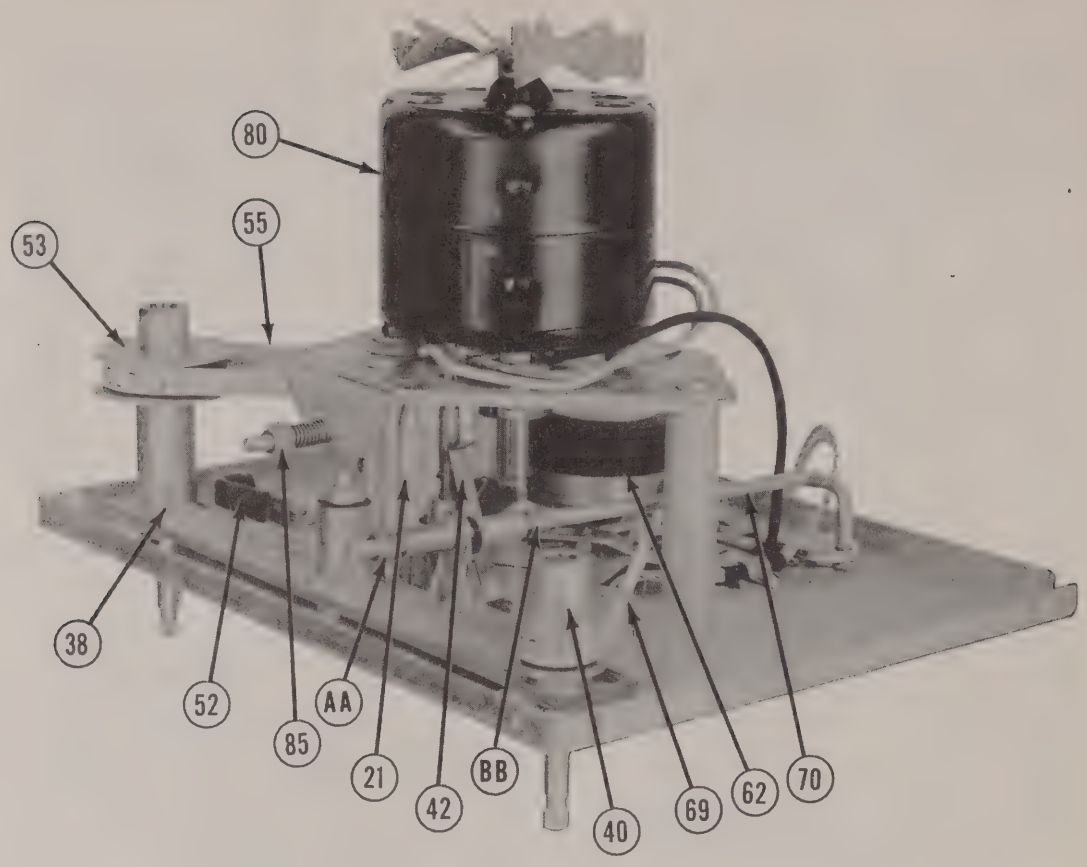


Figure 4

1. To rewind a portion of the tape or the entire reel, merely turn the control knob (7) to "Rewind." The tape will now rewind at a high rate of speed until the control knob is turned to "Neutral."

NOTE: Switching the direction of the control knob (7) i.e. from "Wind" to "Rewind," or vice versa, will act as a very effective brake in cutting down the speed of the reels and it is recommended that this method be used where fast stopping is necessary. However, it is better for the mechanism if this fast-breaking is used moderately.

2. If a portion of a recording is to be skipped it may be done by turning knob (7) to "Wind." The tape will now wind forward at a high rate of speed until the knob (7) is turned to "Neutral."

Use of Capstans -

There are two capstans (25) and (25A) which control the speed of the recorder.

1. The small capstan (25A), which is permently built into the machine, carries the tape past the heads at a speed of 3-3/4" per second, which gives one hour playing time in one direction on a 7" reel or two hours of playing time by using the two track operation. See "Dual Track Recording." The slow speed capstan (25A) is used for economic long period playing.

2. The large capstan (25) is a sleeve which can be slipped over the smaller capstan (25A) and tightened by turning its knurled head.

To remove the capstan (25) so as to record at slow speed, the controls must be set as follows:

(a) Knobs (2) and (7) must be in "Neutral" position.

(b) "Tone" control must be turned off.

(c) The motor release pin (20) should be in a raised position.

(d) To remove the capstan (25) grasp the knurled portion of the capstan (25), and give it a quick twist in a counterclockwise direction, then unscrew it from the smaller capstan.

(e) If difficulty arrises in loosening the capstan, grasp the feed reel spindle (11) and push firmly toward the rear of the case. At the same time turn the capstan counterclockwise.

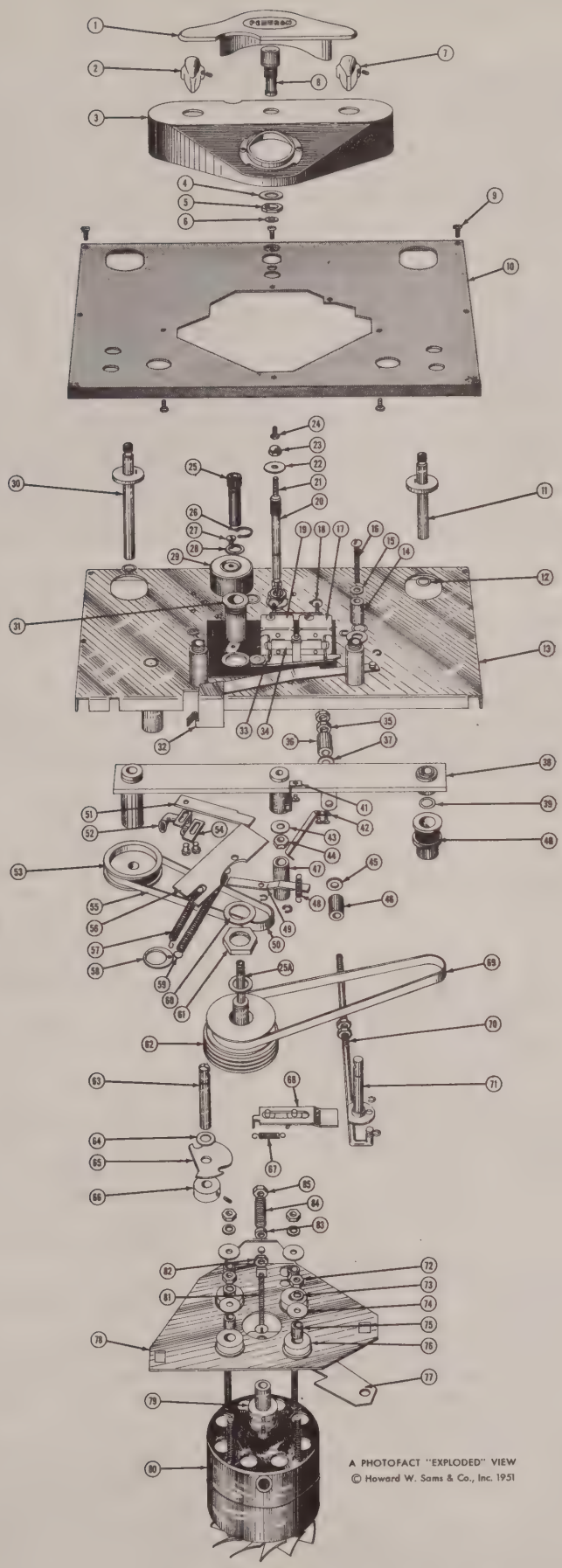
To replace the capstan.

(a) The machine should be turned off and the control knobs turned to neutral.

(b) The motor release pin should be in the "In" position.

(c) The capstan may now be screwed down on the small capstan without getting it too tight.

Use of an External Amplifier -



A PHOTOFACT "EXPLODED" VIEW
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1. To use the Pentron 9-T3 Tape Recorder with an external amplifier simply connect the external amplifier to "Ampl." jack.

2. Turn the "Volume" and "Tone" controls completely clockwise.

3. Turn knob (2) to "Play."

4. Use the volume and tone controls on the external amplifier for proper adjustment.

Use of an External Speaker -

1. An external speaker (3.2 voice coil) may be used with the recorder by plugging it into the "Speaker Output" jack. When the connection is made the internal speaker is automatically disconnected and the entire output will be heard through the external source.

2. For privacy of playback a set of low impedance earphones can be plugged into the "Speaker Output" jack.

FUNCTIONS OF PRINCIPAL PARTS

Tone Control -

The tone control not only serves as the tone control, but also contains the master switch which turns the amplifier and mechanism off and on.

The tone control is automatically disconnected during recording; therefore, when recording from a radio be sure the tone control on the radio is set for maximum treble. These highs may be subdued with the "Tone" control in the recorder during playback.

Volume Control -

The "Volume" control regulates the volume for both playback and recording.

Wind and Rewind -

When the control knob (7) is turned to "Wind" the tie rod (70) pivots the equalizer bar (38) clockwise a certain amount. This causes the belt (55) to become taut, causing the mechanism to wind at a high rate of speed.

When this knob (7) is turned to "Rewind" the equalizer bar is pivoted counterclockwise by the tie bar (70). Belt (69) then becomes taut, thus causing the tape to rewind at a high rate of speed.

Safety Lock -

The safety lock button (8) when depressed, engages the safety lever (32) which in turn closes the circuit for recording. The safety lever (32) is held in this downward position when the "Play-Record" knob (2) is turned to record. The main purpose of this safety lock (32), however, is to prevent the mechanism from being turned to "Record" unless a recording is to be made. Therefore, this safety devise prevents accidental erasing of recorded material.

Play-Record Control -

When the "Play-Record" knob (2) is turned to "Play," the pressure roller slide plate (56) moves forward due to the slide plate being held against the control cam (65) by spring (59). This forward movement engages the pressure roller (29) with the capstan (25), which, in turn, drives the tape at a constant speed. The take-up bar (51), which is held against the end of the slide plate (56) by spring (57), is pivoted at the same time causing the boot (52) to press against the equalizer bar for the belt (55) to rotate the take-up spindle so as to wind the tape on the reel. It also acts as a clutch by allowing the belt to slip, due to the slower speed of the capstan. Also by the movement of the slide plate (56), the pressure pads are moved inward, which keeps the tape in positive contact with the heads.

The operation for this control is the same when turned to "Record," except the "Lock" button (8) must be depressed first.

Mechanical Interlock -

The automatic mechanical interlock (68) makes it impossible to actuate one control knob while the other is being used. Therefore, do not attempt to force the knobs.

Motor Release Pin -

When the motor release pin (20) is pulled to the "Out" position, the motor is engaged with the flywheel (62). When this pin is in the "In" position the motor and flywheel are disengaged.

Always leave the pin (20) in the "In" position when the machine is not in use. This prevents bumps or dents in the rubber surface of the flywheel, which result in rough operation.

Volume Indicator Eye -

The volume indicator eye is intended for use during recording. The correct recording volume level is attained when the loudest portions of the signal just cause the eye to close. If too high a level is used, distortion will occur. This is indicated by the eye overlapping. Too low a recording level will result in relatively higher background noises.

ADJUSTMENTS

Motor Drive -

The motor drive is adjusted by turning screw (21). See Figure 2.

1. To make this adjustment turn the "Tone-On-Off" switch to "On."

2. Pull the motor release pin (20) to "On" position.

3. Turn the "Play-Record" knob (2) to "Play."

4. Adjust screw (21) until proper engagement is obtained. Loosening screw (21) increases engagement; tightening screw (21) decreases engagement.

NOTE: The correct amount of engagement is determined by stopping the large capstan (25) with the finger while it is running in "Play" position. When this becomes difficult to do, there is sufficient engagement to insure proper operation.

CAUTION: Do not adjust this screw (21) beyond pro-

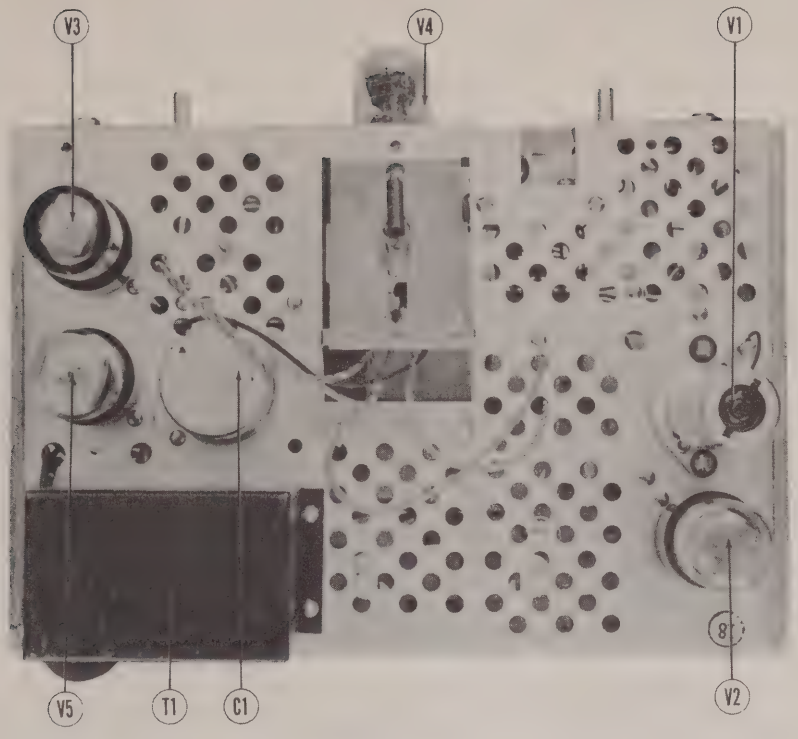


Figure 5

per engagement, as this will place unnecessary and excessive load on the motor which might result in distortion and wows.

5. If, for any reason, sufficient engagement cannot be obtained by adjusting screw (21), turn nut (85), (See Figure 4) several clockwise turns. This applies more tension on spring (84), which, in turn, through the motor mounting plate (78), holds the motor in engagement with the flywheel (62).

Traction or "Drag" on Reel Spindle -

This adjustment is made by loosening hex nut (23) and shifting the equalizer bar (38) forward or backward.

Make the adjustment as follows:

With the control knob in "Idle" position and with an equal amount of tape on each reel, move the equalizer bar (38) back until a slight amount of drag is noticeagle on each reel. Then tighten the nut (23). Check the adjustment by drawing a small loop of tape from each reel. These loops should stay immobile. If the reels take up the slack at this point, the amount of drag is too great and should be relieved very slightly.

Should the tape have a tendency to wind up or creep onto the "Take-Up Reel" while making the above adjustment, correction can be made by maneuvering the nuts (AA) and (BB), (See Figure 4) backwards on the tie bar (70).

Take-Up on Take-Up Reel -

Take-up adjustment on the "Take-Up Reel" is required if, when the control knob (2) is placed in the "Play" or "Record" position, a loop of tape feeds out before the "Take-Up Reel" starts turning, or if the tape pressure fingers (34) are not engages with the tape before the "Take-Up Reel" starts turning.

The adjustment is accomplished by loosening the screw holding the finger (52) (See Figure 3). Moving the finger toward the equalizer bar decreases the time required for the "Take-Up Reel" to start turning, and, of course, the finger must be moved away from the equalizer bar to increase the time.

TROUBLES

Motor Runs but Capstan (25) Does Not Turn -

1. Motor release pin (20) in the "Off" position. This causes the motor to engage the flywheel (62).

2. Motor engagement pin (21) may be out of adjustment. See "Motor Drive" adjustment

Tape Rewinds but Fails to Wind -

1. Tie rod out of adjustment.

(a) Adjusting nuts (AA) (See Figure 4) turned to the end of the tie rod too far. With the Wind-Rewind knob (7) in "Wind" position, screw the two adjusting nuts inward until the tape winds on the "Take-Up Reel."

2. Check the equalizer bar to see if it is adjusted properly. See "Traction" or "Drag" on "Reel Spindles."

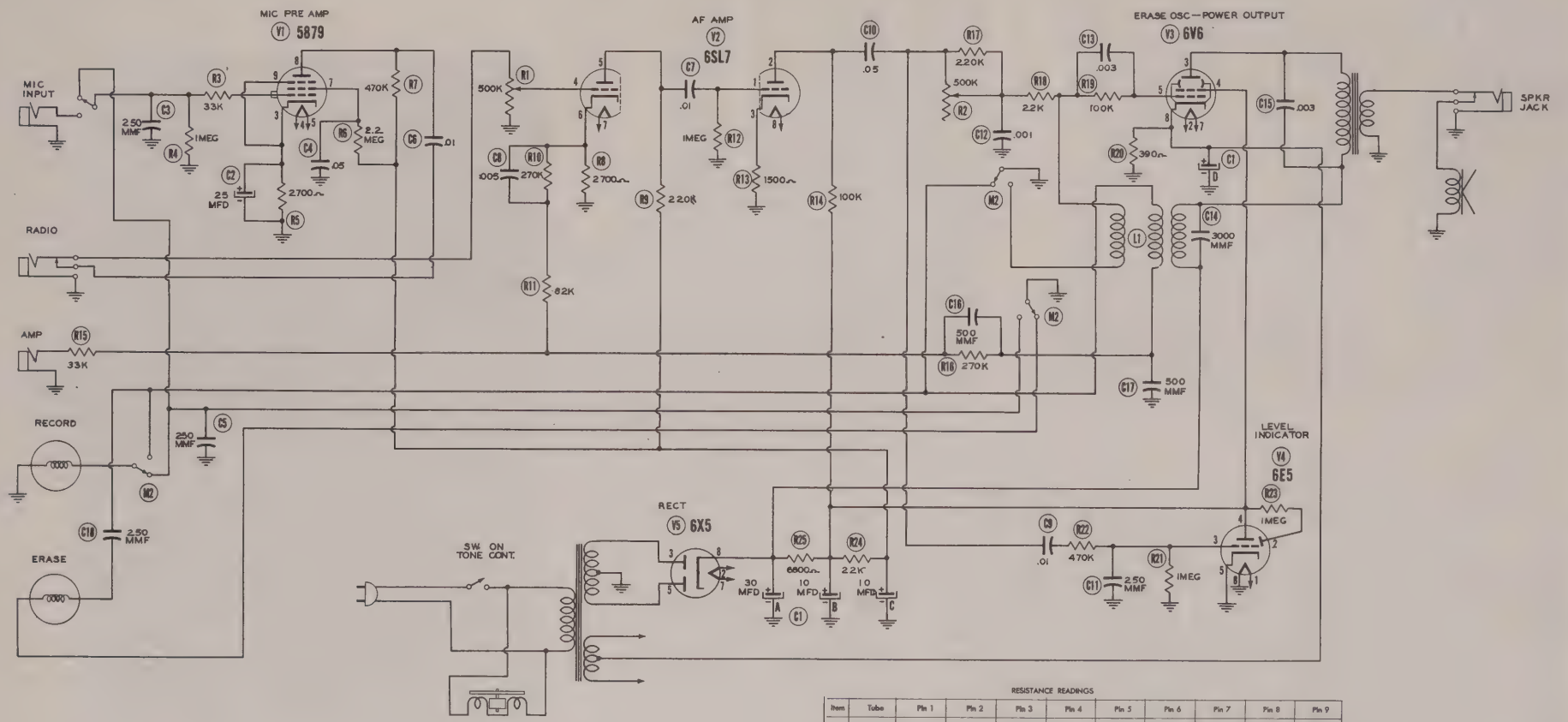
Tape Fails to Wind on Take-Up Reel When in "Play or Record" Position -

1. Take-up belt (55) may be broken.

2. Equalizer bar (38) may be out of adjustment. See "Traction or Drag" on "Reel Spindle."

3. Rubber boot (52) not contacting equalizer bar properly.

(a) Loosen the screw holding boot (52), then move boot toward the equalizer bar and tighten the screw.



A PHOTOFACT STANDARD NOTATION SCHEMATIC

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RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	5879	1Meg	1Meg	2.7KΩ	380Ω	380Ω	0Ω	¶2.5Meg	¶500KΩ	2.7KΩ
V 2	6SL7GT	1Meg	†120KΩ	1.5KΩ	0Ω	†250KΩ	2.7KΩ	380Ω	380Ω	
V 3	6V6GT	0Ω	380Ω	†540Ω	†8KΩ	¶100KΩ 300KΩ	¶7Ω 200KΩ	380Ω	380Ω	
V 4	6E5	380Ω	†8KΩ	1Meg	†1Meg	0Ω	380Ω			
V 5	6X5	60KΩ	380Ω	540Ω	Inf.	550Ω	Inf.	380Ω	60KΩ	

¶ TAKEN IN RECORD POSITION.
† MEASURED FROM PIN 8 OF V5.

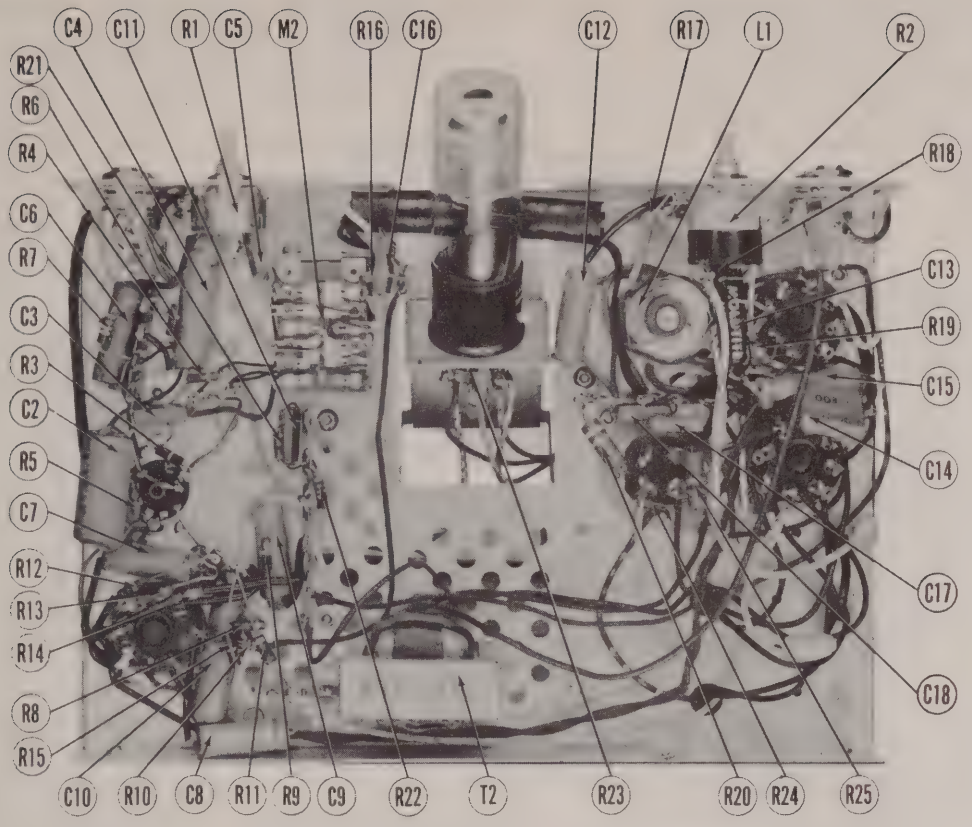


Figure 6

MECHANICAL PARTS LIST

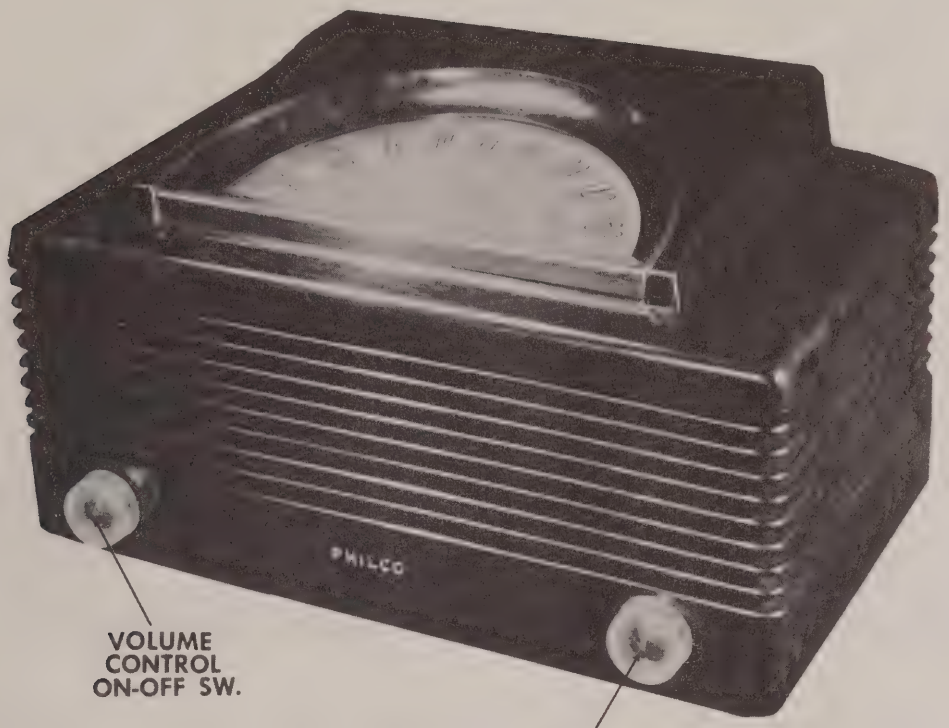
Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
1		Rear Trim Cover	29	964-A-25	Pressure Roller Assembly
2		Play-Record Control Knob	30		Take-Up Reel Spindle
3		Front Trim Cover	31	964-A-58	Capstan Bearing
4		Flat Washer	32		Record Safety Lever
5		Hex Nut	33		Tape Pressure Pad Arm
6		Rubber Washer	34		Tape Pressure Spring and Pads
7		Wind and Rewind Knob			
8		Safety Lock Button	35		Adjustment Nuts for Tie Bar Item (70)
9		Mounting Screw-Top Plate			
10		Top Plate	36	712-A-9	Sleeve for Tie Bar Item (70)
11		Feed Reel Spindle	37		Flat Washer for Item (70)
12		Flat Washer			
13		Main Base Plate	38	964-B-7	Equalizer Bar and Pulley Assembly
14		Tape Guide Sleeve			
15		Flat Washer	39		Flat Washer
16		Round Head Machine Screw	40		Rewind Pulley
17	943-B-5	Erase Head	41		Pressure "Leaf" Spring for Motor Engagement Pin
18		Mounting Screw for Record Head	42		Pressure "Leaf" Spring for Motor Release Pin
19	943-B-4	Record Head			
20	714-A-113	Motor Release Pin	43		Flat Steel Washer for Item (38)
21		Adjusting Screw Motor Drive	44		Hex Nut for Mounting Item (38)
22		Flat Washer	45		Flat Washer for Item (70)
23	714-A-82	Adjusting Nut for Equalizer Bar	46	712-A-9	Sleeve for Item (70)
			47		Bearing Sleeve for Item (20)
24		Hex Head Screw for Mounting Trim Cover	48		Pressure Arm Spring
			49		Pressure Pad Actuating Lever
25	714-A-110	Capstan (3.75" per second)	50	899-3	Flat Belt (Flywheel to Take-Up Reel)
	714-A-111	Capstan (7.5" per second)			
26		Retainer for Flywheel	51		Take-Up Bar
27		Mounting Screw for Pressure Roller	52		Rubber Boot
			53		Take-Up Pulley
28		Steel Washer for Item (31)	54		Positioning Stop

Ref. No.	Part No.	Description
55		Same as Item (50)
56		Pressure Roller Slider
57	712-A-5	Spring (Take-Up Bar-Take-Up Reel)
58	711-A195	Spring Anchor Disc
59	712-A-6	Spring (Pressure Roller Slider)
60		Flat Washer for Mounting Item (31)
61		Hex Nut for Mounting Item (31)
62	964-A-27	Flywheel with Tire
63		Play-Record Control Shaft
64		Flat Washer
65	964-A-40	"Play-Record" Cam Assembly
66		Mounting Collar for Item (63)
67	712-A-8	Spring-Interlock Bar
68		Interlock Bar
69	899-2	Flat Belt (Motor Pulley to Feed Reel)
70	713-A-3	Tie Rod
71		"Wind-Rewind" Control Shaft and Cam
72		Hex Nut-Motor Mounting
73		Int. Tooth Lock Washer - Motor Mounting
74		Flat Washer-Motor Mounting
75		Motor Mounting Spacer
76		Rubber Grommet-Motor Mounting
77		Stationery Plate
78	711-B-57	Motor Mounting Plate
79	714-A-41	Motor Pulley
80	367-C-2	Motor

ELECTRICAL PARTS LIST

Ref. No.	Part No.	Description
V1A		5879, Mic. Pre-Amplifier
V1B		6J7, Mic. Pre-Amplifier
V2		6SL7GT, AF Amplifier
V3		6V6GT, Erase Oscillator-Power Output
V4		6E5, Level Indicator
V5		6X5, Rectifier
C1A	285-5064	Filter (Electrolytic), 30 Mfd., @ 350V
C1B	285-5064	Filter (Electrolytic), 10 Mfd., @ 350V
C1C	285-5064	Filter (Electrolytic), 10 Mfd., @ 350 V
C1D	285-5064	Output Cathode (Electrolytic) 25 Mfd., @ 25V
C2	273-2561	Mic. Pre-Amp. Cathode (Electrolytic) 25 Mfd., @ 25V
C3	232-2515-2	Tone Compsensation, 250 Mmf., @ 500V
C4	263-5034	Mic. Pre-Amp. Screen .05 Mfd., @ 400V
C5	232-2515-2	Fixed Trimmer, 250 Mmf., @ 500V
C6	263-1034	Audio Coupling, .01 Mfd., @ 400V
C7	263-1034	Audio Coupling, .01 Mfd., @ 400V
C8	263-3024	Tone Compensation, .005 Mfd., @ 600V
C9	263-1034	Tuning Ind. Coupling, .01 Mfd., @ 400V
C10	263-5034	Audio Coupling, .05 Mfd, @ 400V
C11	232-2515-2	Tuning Ind. Filter, 250 Mmf. @ 500V
C12	263-1024	Tone Compensation, .001 Mfd., @ 600V
C13	263-3024	Tone Compensation, .003 Mfd., @ 600V
C14	232-3024	Fixed Trimmer, 3000 Mmf., @ 500V
C15	263-3024	Output Plate, .003 Mfd,, @ 400V
C16	232-5015	Osc. Grid Cap, 500 Mmf., @ 500V
C17	232-5015	Fixed Trimmer, 500 Mmf., @ 500V
C18	232-2515-2	Fixed Trimmer, 250 Mmf., @ 500V
R1	124-A-50413-7	Volume Control, 500K ohm, 1/2 watt
R2	126-A-50413-4	Tone Control, 500K ohm, 1/2 watt
R3	111-33321	Mic. Pre-Amp. Grid, 33K ohm, 1/2 watt
R4	11-10521	Mic. Pre-Amp. Grid, 1 Meg.
R5	111-27221	Mic. Pre-Amp. Cathode, 2700 ohm
R6	111-22521	Mic. Pre-Amp. Screen, 2.2 Meg.
R7	111-47421	Mic. Pre-Amp. Plate 470K ohm
R8	111-27221	AF Amp. Cathode, 2700 ohm
R9	111-22421	AF Amp. Plate, 220K ohm
R10	111-27421	Tone Compensation, 270K ohm
R11	111-82321	Tone Compensation, 82K ohm
R12	111-10521	AF Amp. Grid, 1 Meg.
R13	111-27421	AF Amp. Cathode, 1500 ohm
R14	111-10421	AF Amp. Plate, 100K ohm
R15	111-15221	Tone Compensation, 33K ohm
R16	111-27421	Tone Compensation, 270K ohm
R17	111-22421	Tone Compensation, 220K ohm
R18	111-22321	Output Grid, 22K ohm
R19	111-10421	Output Grid, 100K ohm
R20	111-39131	Output Cathode, 390 ohm, 1 watt
R21	111-10521	Level Indicator Grid, 1 Meg., 1/2 watt
R22	111-47421	Level Indicator Network, 470K ohm
R23	111-10521	Level Indicator Plate, 1 Meg.
R24	111-22321	Decoupling, 22K ohm
R25	111-68231	Filter, 6800 ohm
T1	352-17	Power Transformer
T2	342-12	Output Transformer
SP1	345-A-12	Speaker
SP2		Cone (3 ohm voice coil)
L1	311-13	Erase Oscillator Coil
M1		Interlock Switch
M2		Function Switch

PHILCO
MODELS 51-930, 51-931, 51-932



PHILCO
MODELS 51-930, 51-931, 51-932

PHILCO MODEL 51-930

TRADE NAME	Philco, Models 51-930, 51-931, 51-932
MANUFACTURER	Philco Corp., Tioga and "C" Sts., Philadelphia, Pennsylvania
TYPE SET	AC-DC Operated Superheterodyne Receiver with Loop Antenna
TUBES (SIX)	Types 7B7 RF Amp., 7A8 Converter, 7B7 IF Amp., 14B6 DET.-AVC-AF, 35L6GT Power Output, 35Z5GT or 35Y4 Rectifier
POWER SUPPLY	105-120 Volts AC-DC — RATING .25 Amp. at 117 Volts AC
TUNING RANGE—BROADCAST	540-1620 KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer turn tuning gang fully closed and center pointer over the last scribe mark at the left hand end of the pointer carriage support.
Use isolation transformer, if available. If not, connect a .1MFD capacitor in series with low side of signal generator and B-.
Loop should be maintained in same relative position to chassis as when receiver is in cabinet.
Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.1MFD.	High side to pin 6, ((Grid), of 7A8, (V2). Low side to B-.	455KC (400∿ Mod.)	Tuning gang fully open.	Across voice coil.	A1, A2, A3, A4	Adjust for maximum output. If isolation transformer is not used, reduce dummy antenna to .001MFD to reduce hum modulation.
2.		Loop	1620KC	"	"	A5	Pre-set A8 ½ turn counter-clockwise from tight. Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3.		Loop	1500KC	Tune for max. output.	"	A6, A7	Adjust for maximum output.
4.		Lopp	580KC	Set pointer over second scribe mark from left end of carriage support.	"	A8, A9	Rock tuning gang while adjusting A8 and A9 for maximum output.

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PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: PHILCO PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RTMA BASE TYPE	INSTALLATION NOTES
V1	RF Amplifier	7B7	7B7	8V	
V2	Converter	7A8	7A8	8U	
V3	IF Amplifier	7B7	7B7	8V	
V4	Det.-AVC-AF	14B6	14B6	8W	
V5	Power Output	35L6GT	35L6GT	7AC	
V6A	Rectifier	35Y4	35Y4	5AL	
B	Rectifier	35Z5GT	35Z5GT	6AD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: PHILCO PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C1A	40	150	30-2575-27	PRS150/40-40+40		EDL44415		TVA-3451	Filter (orange)
B	30	150							Filter (blue) †
C	30	150							Filter (red)
C2	.05	200	61-0122	P288-05	DF-503	PTE4S5		2TM-S5	RF Bypass
C3	47	500	60-00475417	1469-00005	TCZ-47	5R5Q5	NP0L-470	MS-45	Osc. Grid Cap.
C4	13		30-1224-68				N750K-130		Fixed Trimmer
C5	.05	400	61-0122	P488-05	DF-503	PTE4S5		4TM-S5	AVC Filter
C6	.01	400	61-0120	P488-01	D6-103	PTE4S1	GP2-333-103	4TM-S1	Audio Coupling
C7A	.007		30-1239-4	P688-0068	D6-682		GP2-333-682	38C1	Audio Coupling
B	220			SI220	D6-221	5W5T25	GP2K-221		Power Output Grid
C8	.02	400	61-0108	P488-02	DF-203	PTE4S2		4TM-S2	Power Output Plate
C9	.047	400	45-3505-45	P488-047	DF-503	PTE4S5		4TM-S47	Line Filter
C10	.1	400	61-0113	P488-1	DF-104	PTE4P1		4TM-P1	Line Isolation

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: PHILCO PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	INSTALLATION NOTES
R1A	500KΩ	½	33-5566-13	Q13-133	AZ-60-Z	B-60-S	Volume Control
B	Shaft		Not req.	Not req.	FS-3	Not req.	Attach to R1A per instructions
C	Switch		Not req.	76-1	SWB	Not req.	Attach to R1A per instructions

RESISTORS

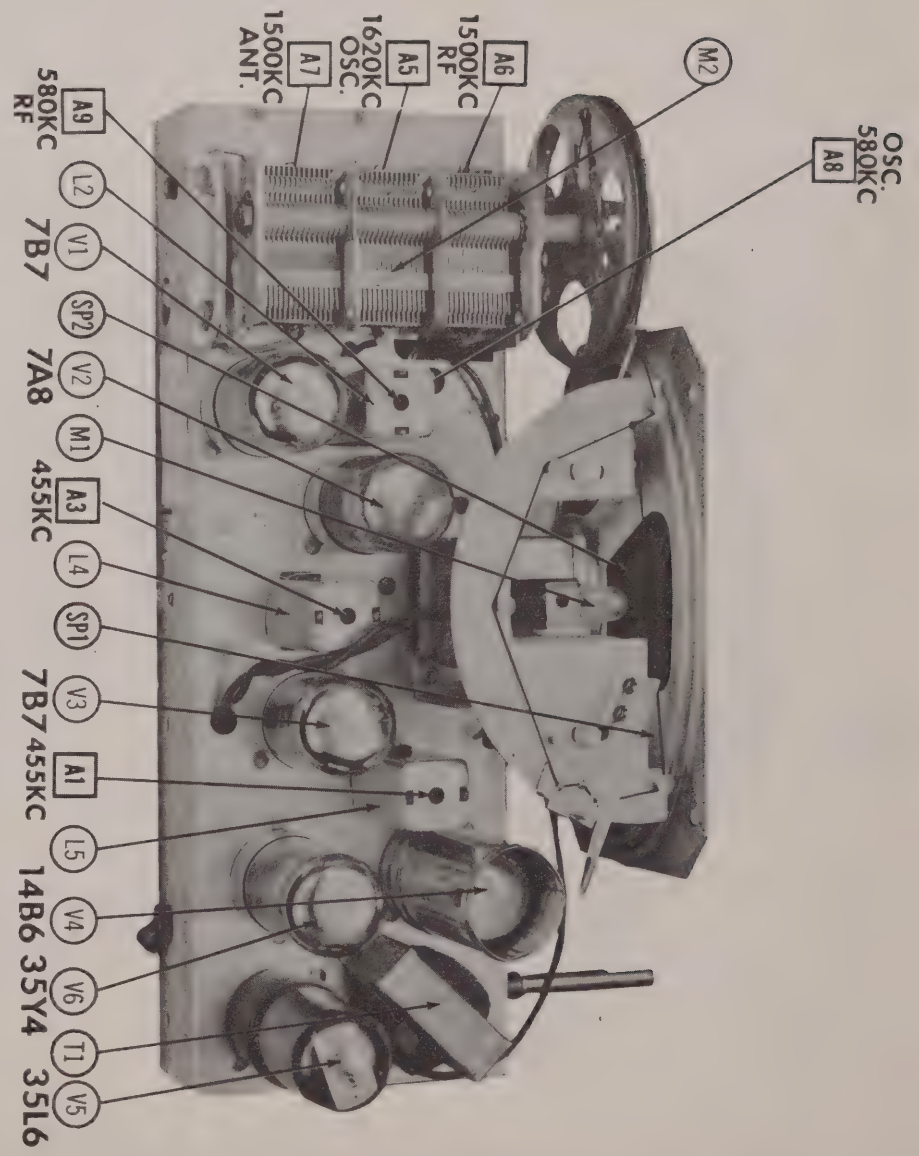
ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: PHILCO PART No.	IRC PART No.	IDENTIFICATION CODES
R2	2.2Meg	½	66-5228340	BTS-2.2Meg	AVC Network
R3	150KΩ	½	66-4158340	BTS-150K	Line Isolation
R4	22KΩ	½	66-3228340	BTS-22K	Screen Dropping
R5	100KΩ	½	66-4108340	BTS-100K	Osc. Grid
R6	47KΩ	½	66-3478340	BTS-47K	RF Diode Filter
R7	2.2Meg	½	66-5228340	BTS-2.2Meg	AVC Network
R8	3.3Meg	½	66-5338340	BTS-3.3Meg	AF Amp. Grid
R9	470KΩ	½	66-4478340	BTS-470K	AF Amp. Plate Load
R10	470KΩ	½	66-4478340	BTS-470K	Output Grid
R11	130Ω	½	66-1128340	BW-½-150	Output Cathode - Wire Wound
R12	1200Ω	½	66-2128340	BTS-1200	Filter
R13	220Ω	1	66-1224340	BW-1-220	Filter - Wire Wound
R14	100Ω	½	33-1343-3		Series Filament See Note

Note Special negative temperature coefficient resistor.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: PHILCO PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	INSTALLATION NOTES
T1	2.6KΩ	3-4Ω	315Ω	.6Ω	32-8310-3	A-3876	A-2928	RO-2	

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA PHILCO PART No.	VIKING PART No.	QUAM PART No.	INSTALLATION NOTES
	FIELD	V. C. IMP.				
SP1	PM	3Ω	36-1633-3	46J4 ①	46A1 ①	① Drill and tap magnet frame
	CONE DIA.	V. C. DIA.				
SP2	4"X6"	9/16"				

R F COILS

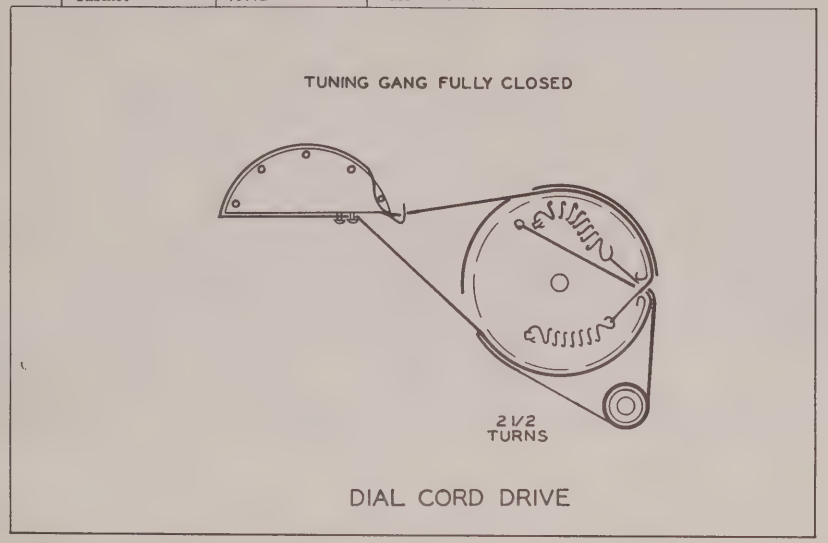
ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA PHILCO PART No.		
L1A	Loop Ant.	.4Ω	3.1Ω	32-4052-39		Model 51-930
B	Loop Ant.	.3Ω	3Ω	32-4052-40		Models 51-931 and 51-932
L2	RF Coil	100Ω	5Ω	32-4399-2A		
L3	Osc. Coil	2.5Ω	5.5Ω	32-4263-3		
L4	Input IF	13Ω	13Ω	32-4160A		
L5	Output IF	16Ω	16Ω	32-4240-3A		

DIAL LIGHTS

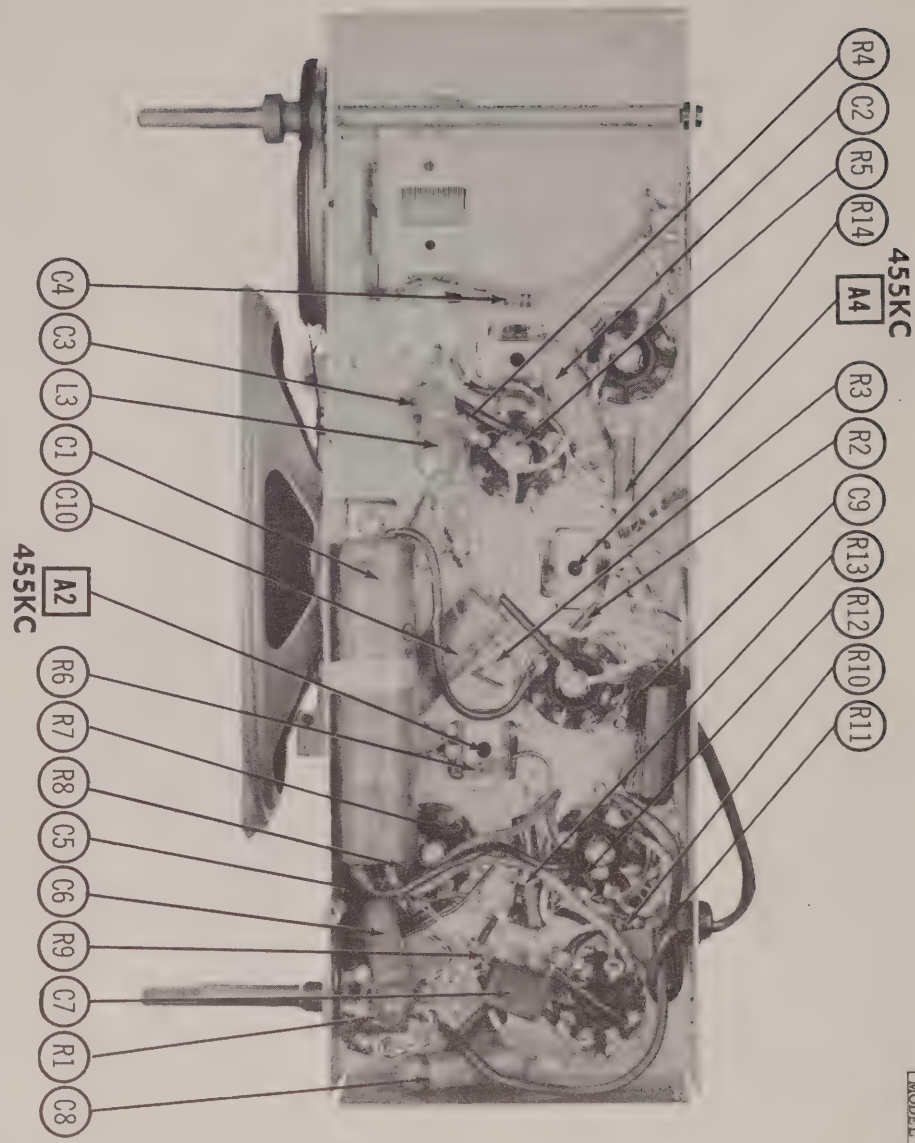
ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA PHILCO PART No.		NOTES
M1	Bayonet	6-8	.15	Brown	34-2676		Type # 47

MISCELLANEOUS

ITEM No.	PART NAME	PHILCO PART No.	NOTES
M2	3 Gang Var. Cap.	31-2749-1	(12-496MMF.) Each Section
	Cabinet	10770-2	Model 51-930 (Mahogany)
	Cabinet	10770-3	Model 51-930 (Grey)
	Cabinet	76-5378	Model 51-931
	Cabinet	70772	Model 51-932

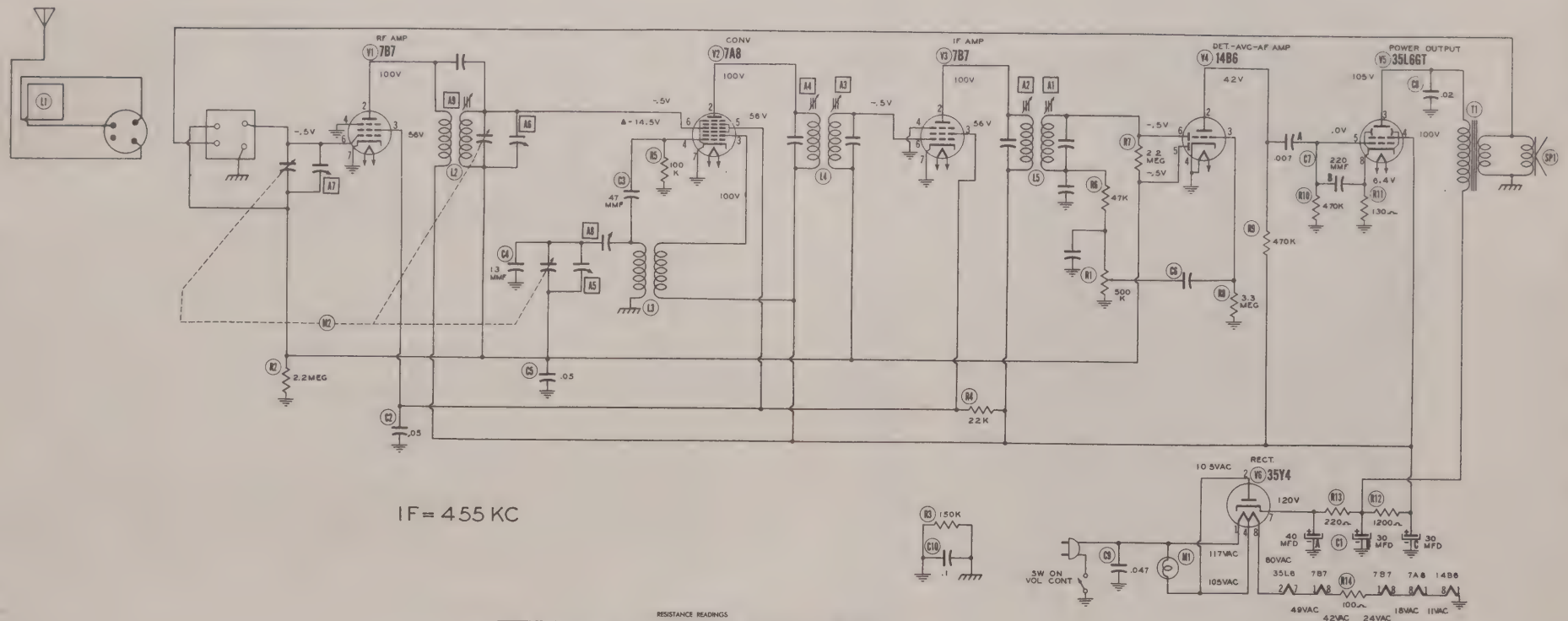


CHASSIS—BOTTOM VIEW



PHILCO MODEL 51-930

PHILCO MODEL 51-930



IF = 455 KC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
V 1	7B7	21Ω	†1.4KΩ	†23KΩ	0Ω	0Ω	1.2Meg	0Ω	28Ω
V 2	7A8	14Ω	†1.4KΩ	†1.4KΩ	100KΩ	†23KΩ	1.2Meg	0Ω	21Ω
V 3	7B7	135Ω	†1.4KΩ	†23KΩ	0Ω	0Ω	1.2Meg	0Ω	128Ω
V 4	14B6	0Ω	†470KΩ	3.3Meg	0Ω	1.2Meg	470KΩ	0Ω	14Ω
V 5	35L6GT	Int.	170Ω	†535Ω	†1.4KΩ	470KΩ	†220Ω	135Ω	130Ω
V 6	35Y4	205Ω	195Ω	0Ω	195Ω	†1.4KΩ	†220Ω	80KΩ	170Ω

▲ TAKEN WITH VACUUM TUBE VOLTMETER
† MEASURED FROM PIN 7 OF V6

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1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

PHILCO
MODELS 52-640, 52-641

PHILCO
MODELS 52-640, 52-641

TRADE NAME	Philco, Models 52-640, 52-641
MANUFACTURER	Philco Corp., Tioga & C Strs., Philadelphia, Pennsylvania
TYPE SET	Three Power Operated Portable Superheterodyne Receiver with Loop Antenna
TUBES (FOUR)	Types 1R5 Converter, 1U4 IF Amp., 1U5 Det-AVC-AF, 3V4 Power Output
POWER SUPPLY	105-125 Volts AC-DC or 1.5 Volts "A" Supply and 67.5 Volts "B" Supply
RATING	.12 Amp @ 117 Volt AC or 250 MA @ 1.5 Volts DC and 9 MA @ 67.5 Volts DC
TUNING RANGE—BROADCAST	540-1620 KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer, turn tuning capacitor fully closed and set pointer to last reference mark at low frequency end of dial.
Use Battery power, if possible. If AC power is used, use an isolation transformer when available. If not, connect a .1MFD capacitor in series with low side of the signal generator and B-.
Loop should be maintained in same relative position to chassis as when receiver is in cabinet.
Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.1MFD	High Side to pin 6, (Grid) of 1R5, (V1) Low side to B-.	455 KC (400~ Mod.)	Tuning Gang fully open	Across voice coil	A1, A2, A3	Adjust for maximum output. If AC power is used without an isolation transformer, reduce dummy antenna to 200 MMF to reduce hum modulation.
2.		Loop	1620 KC	"	"	A4	Fashion Loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3.	Loop	Loop	1500 KC	Tune for Max. output	"	A5	"
	The following step should be performed only after oscillator coil replacement.						
4.		Loop	535KC	Tuning Gang fully closed.	Across voice coil	A6	Fashion Loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output. Repeat steps 2, 3, & 4 until no further improvement can be made.

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PARTS LIST AND DESCRIPTIONS

PHILCO MODEL 52-640

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: PHILCO PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RTMA BASE TYPE	INSTALLATION NOTES
V1	Converter	1R5	1R5	7AT	
V2	IF Amplifier	1U4	1U4	6AR	
V3	Det AVC-AF	1U5	1U5	6BW	
V4	Power Output	3V4	3V4	6BX	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: PHILCO PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C1A	50	150	30-2568-39			UP64215		TVL-2435	■ Filter
B	40	150						TVA-1406	▲ Filter
C	10	150							Filter
C2	50	25	30-2417-12	PRS25/50		BR502A		TVA-1206	Fil. Bypass
C3	1000		45-3500-5	SI1000	D6-102	1W5D1	GP2L-102	5HK-D1	RF Coupling *
C4	47		62-051009001	SI47	D6-470	5W5Q5	GP1K-470	5GA-Q47	Osc. Grid Cap.
C5	1.5		30-1221-3	SI1.5N PO	TCZ-1.5		NPOK-1R5		Osc. Coupling
C6	7.5		30-1224-83				N22OK-7R5		Fixed Trimmer
C7	.05	200	61-0122	P288-05	DF-503	PTE4S5		2TM-S5	AVC Filter
C8A	5000		30-1239	BPD-005	DD-2-502	1D5D5	811-005	5HK-D5	Osc. Anode
B	5000			BPD-005		1D5D5	811-005	5HK-D5	IFAmp. Grid Filter
C9	.22	200	30-4656-1	P488-22		GT2P25		2TM-P22	Fil. Bypass
C10	1.5		30-1221-3	SI1.5 NPO	TCZ-1.5		NPOK-1R5		IF Feed Back
C11A	.001		♦30-1327	BPD-001	DD-102		801-001	♦34C1	Audio Coupling
B	.01			BPD-01	DD-103		821-01		AF Amp. Screen
C	.002			BPD-002	DD-202		801-002		Audio Coupling
D	220			SI220	D6-221		GP2K-221		Power Output Grid
C12	.004	600	61-0179	P688-004	D6-402	PTE6D4	GP2-333-402	6TM-D4	Power Output Plate
C13	.047	400	45-3505-45	P488-047	DF-503	PTE4S5		4TM-S47	Line Filter
C14	.1	400	61-0113	P488-1	DF-104	PTE4P1		4TM-P1	Line Isolation

* Not used in all Models

♦ Items C11A, C11B, C11C, C11D are combined in one unit

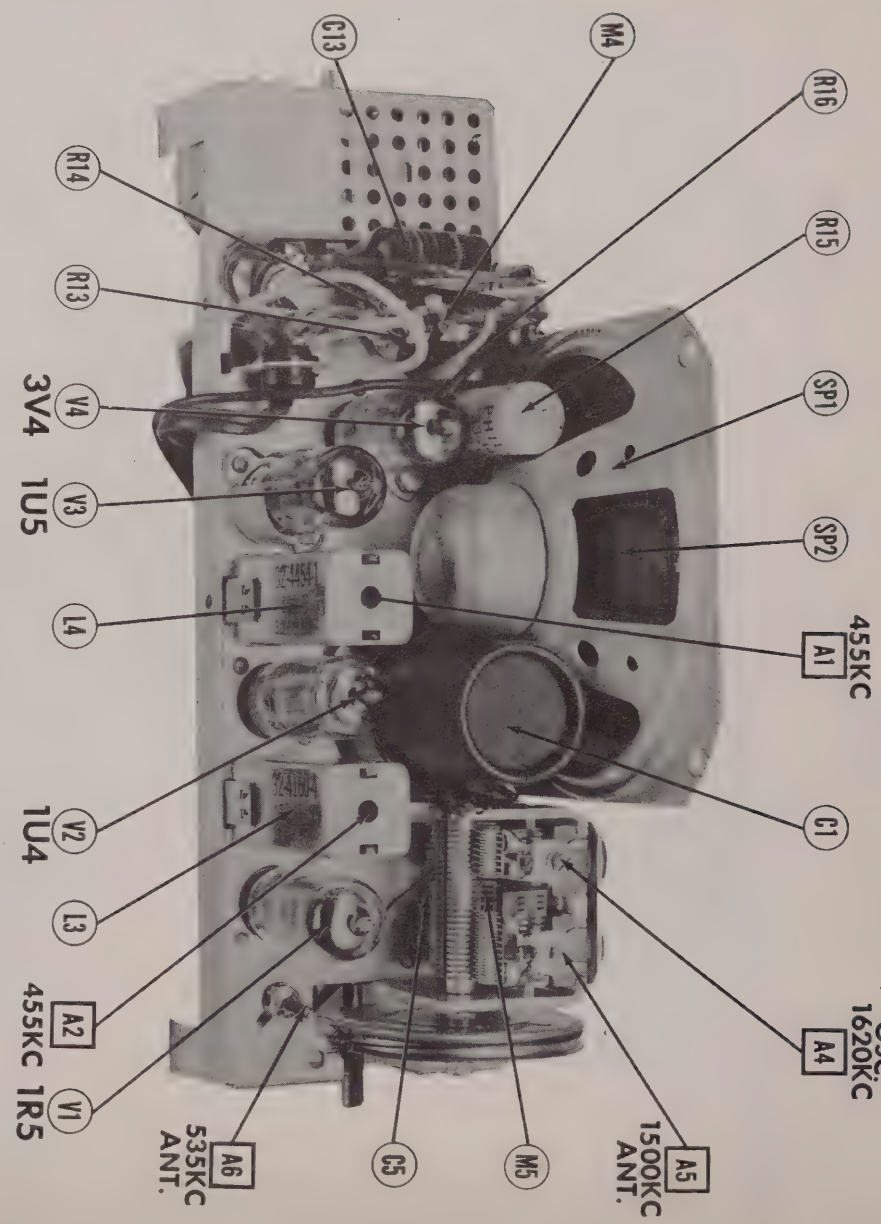
CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: PHILCO PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	INSTALLATION NOTES
R1A	1Meg	½	33-5566-21	Q14-137			Volume Control
B	Shaft		Not req.	Not req.			Attach to R1A per instructions
C	Switch		Not req.	76-2			Attach to R1A per instructions

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: PHILCO PART No.	IRC PART No.	IDENTIFICATION CODES
R2	470Ω	½	66-1478340	BTS-470	Filament String
R3	820Ω	½	66-1828340	BTS-820	Filament String
R4	68Ω	½	66-3688340	BTS-68K	Oscillator Grid
R5	15KΩ	½	66-3158340	BTS-15K	Converter Screen Decoupling
R6	3.3 Meg	½	66-5338340	BTS-3.3 Meg	IF Amp Grid
R7	2.2 Meg	½	66-5228340	BTS-2.2 Meg	AVC Network
R8	4.7 Meg	½	66-5478340	BTS-4.7 Meg	AF Amp Grid
R9	4.7 Meg	½	66-5478340	BTS-4.7 Meg	AF Amp Screen Dropping
R10	1 Meg	½	66-5108340	BTS-1 Meg	AF Amp Plate Load
R11	2.2 Meg	½	66-5228340	BTS-2.2 Meg	Output Grid
R12	2200Ω	½	66-2228340	BTS-2200	Filament String
R13	330Ω	½	66-1338340	BTS-330	Bias Network
R14	1500Ω	½	66-2158340	BTS-1500	Filament String
R15A	1050Ω	10	33-3445		Filament Dropping- Wire Wound
B	1050Ω				Filament Dropping- Wire Wound
R16	820Ω	½	66-1828340	BTS-820	Filter
R17	150KΩ	½	66-4158340	BTS-150K	Line Isolation
R18	120Ω	2	33-1334-14	BW-2-120	Surge Limiter Wire Wound

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		PHILCO PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	
	PRI.	SEC.	PRI.	SEC.					
T1	9KΩ	4Ω	440Ω	.6Ω	32-8434	A-3329			

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			PHILCO PART No.	JENSEN PART No.	QUAM PART No.	
SP1	FIELD / PM	V.C. IMP. 4Ω	32-1627-21	ST113 Mod P4-X	4A1	
SP2	CONE DIA. 4 5/8"	V.C. DIA. 9/16"				

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		
		PRI.	SEC.	PHILCO PART No.		
L1A	Loop Ant.	.1Ω	.8Ω	32-4455		Model 52-641
B	Loop Ant.			32-4052-52		Model 52-640
L2	Osc. Coil	1.5Ω	6.5Ω	32-4453-1		
L3	Input IF	24Ω	24Ω	32-4160-4A		
L4	Output IF	32Ω	24Ω	32-4454-1A		

SELENIUM RECTIFIER

ITEM No.	RATING	REPLACEMENT DATA			NOTES
	CURRENT	PHILCO PART No.	SYLVANIA PART No.	SELETRON PART No.	
M1	.055A	34-8003-1	NB-5	5M4	

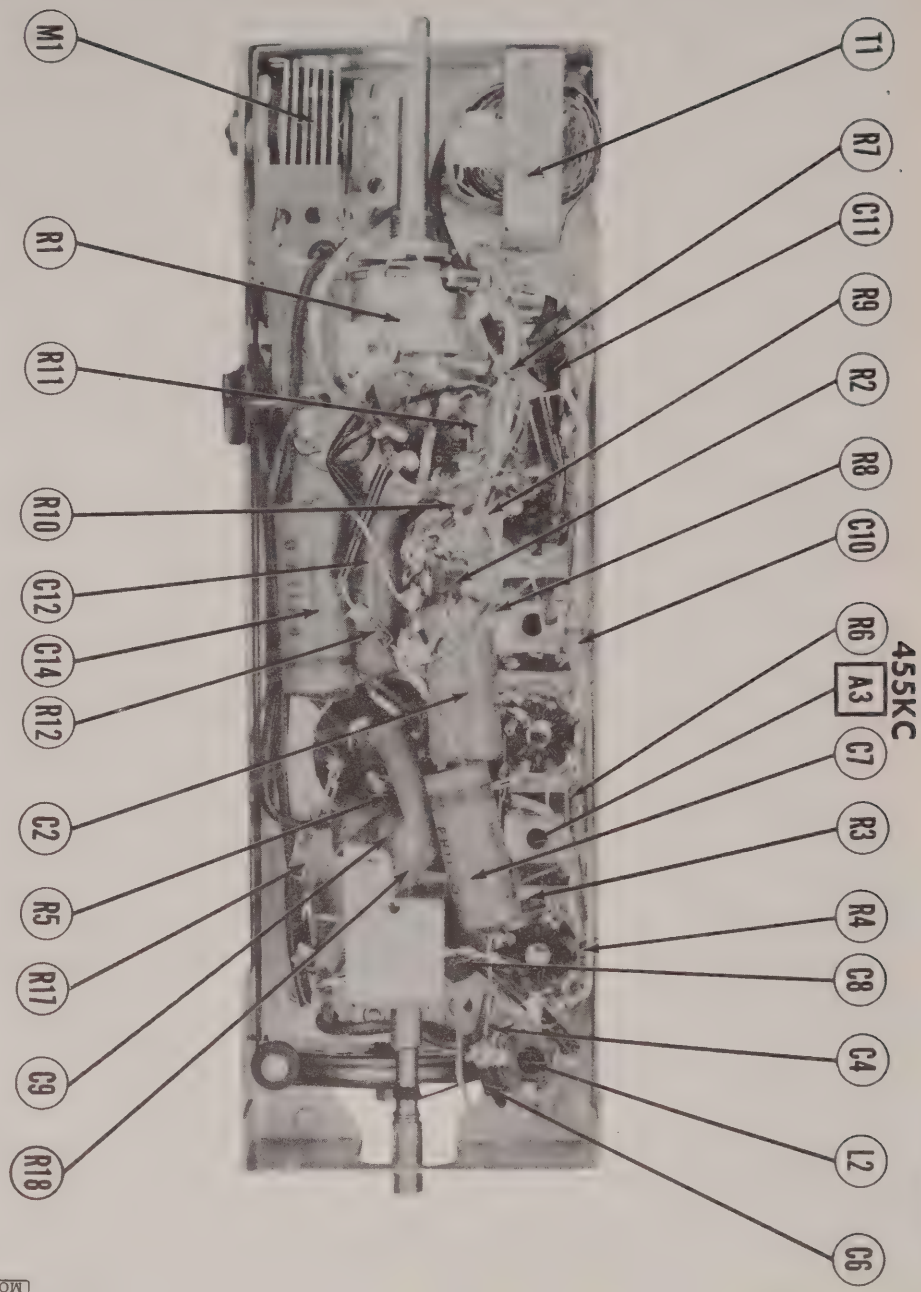
BATTERIES

ITEM No.	VOLTAGE	PHILCO PART No.	REPLACEMENT DATA						INSTALLATION NOTES
			EVEREADY			BURGESS			
			"A"	"B"	"A-B"	"A"	"B"	"A-B"	
M2	1.5V"A"	D	950			2R			Model 52-640 uses Battery Pack part # P-364
M3	67.5V"B"	P-67		467			XX45		

MISCELLANEOUS

ITEM No.	PART NAME	PHILCO PART No.	NOTES
M4	Switch	42-1925	AC/DC - Battery
M5	2 Gang Var. Cap	31-2735-2	(22-351MMF, 14-152 MMF
	Cabinet	10816-3	Model 52-640 (Maroon)
	Cabinet	10799-1	Model 52-641 (Maroon)
	Cabinet	10799-2	Model 52-641 (Red)
	Cabinet	10799-4	Model 52-641 (Nile)
	Cabinet	10799-5	Model 52-641 (Sand)

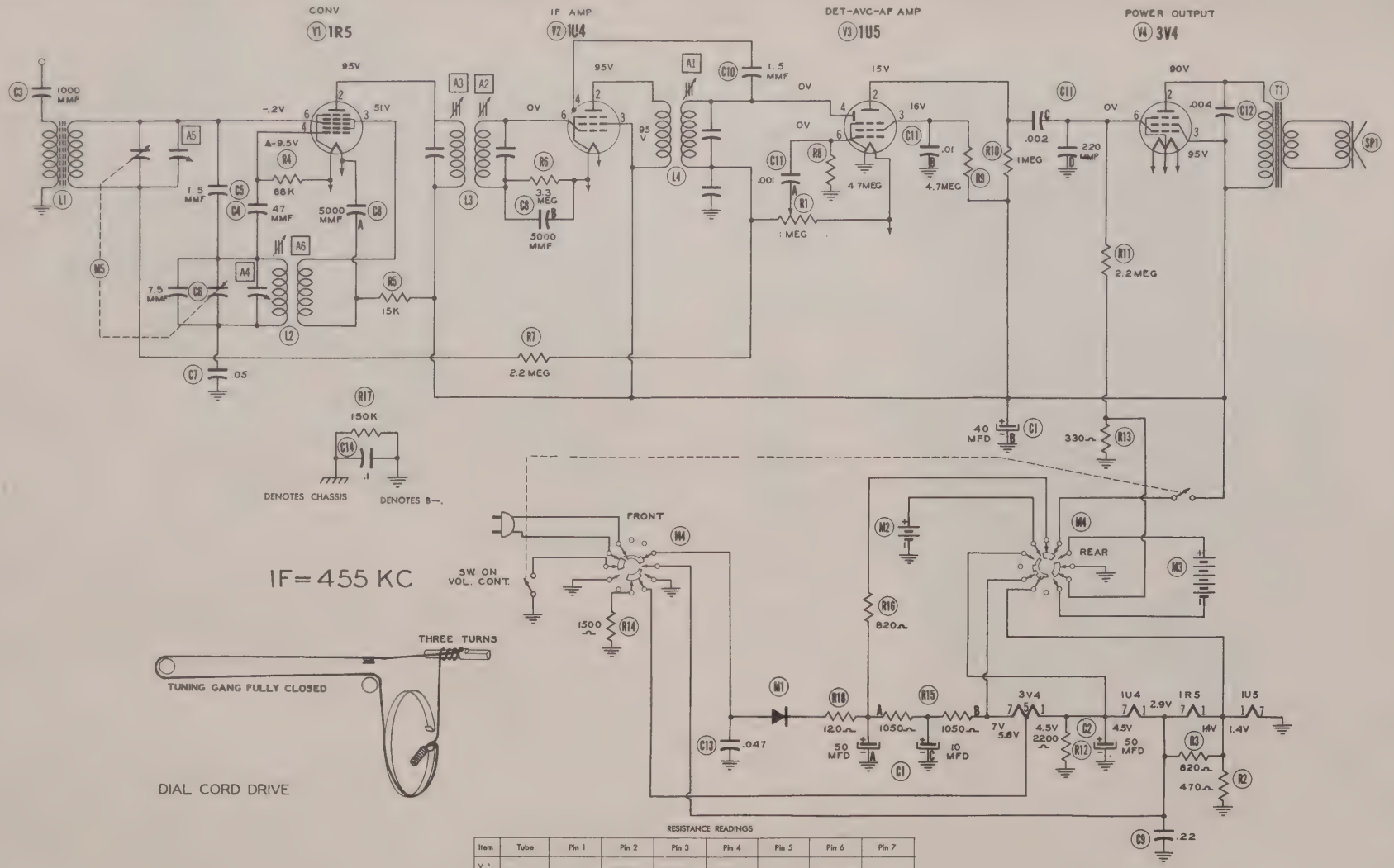
CHASSIS—BOTTOM VIEW



SET 153 FOLDER 12

PHILCO MODEL 52-640

PHILCO MODEL 52-640



RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V 1	1R5	*	†940Ω	†16KΩ	68KΩ	*	3.2 Meg	*
V 2	1U4	*	†940Ω	†940Ω	INF	*	3.3 Meg	*
V 3	1U5	*	†1 Meg	†4.7 Meg	1 Meg	INF	4.7 Meg	*
V 4	3V4	*	†1.3KΩ	†940Ω	INF	*	2.2 Meg	*

V & R TAKEN IN AC-DC POSITION
* DO NOT USE OHMMETER TO MEASURE FILAMENT RESISTANCE
▲ TAKEN WITH VACUUM TUBE VOLTMETER
† MEASURED FROM OUTPUT OF M1

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153-12

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

PHOTOFACT* Folder

*TRADE MARK

PILOT MODELS TV-270, TV-271, U, TV-273, U, TV-290, TV-293U

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MODEL TV-271-U

PILOT MODELS TV-270, TV-271, U, TV-273, U, TV-290, TV-293U

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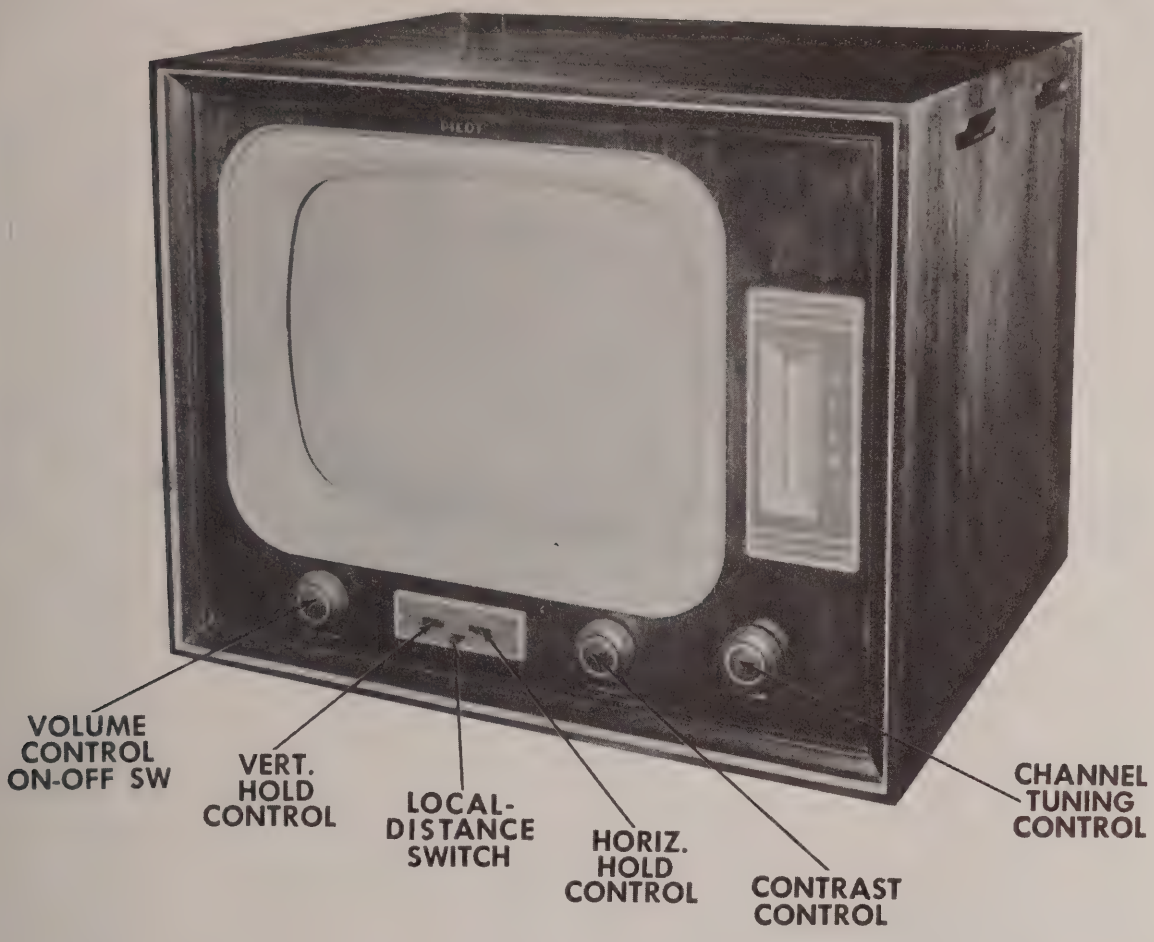
DATE 12-51 SET 153 FOLDER 13

PILOT MODELS TV-270, TV-271, U, TV-273, U, TV-290, TV-293U



PILOT MODELS TV-270, TV-271, U, TV-273, U, TV-290, TV-293U

PILOT MODEL TV-271-U

TRADE NAME	Pilot, Models TV-270, TV-271, TV-271-U, TV-273, TV-273-U, TV-290, TV-293-U
MANUFACTURER	Pilot Radio Corp., 37-06 36th. Street, Long Island City, N. Y.
TYPE SET	Television Receiver
TUBES	Twenty five
POWER SUPPLY	110-120 Volts AC-60 Cycle
RATING	1.0 Amp. at 117 Volts AC
TUNING RANGE	CHANNELS 2 thru 13

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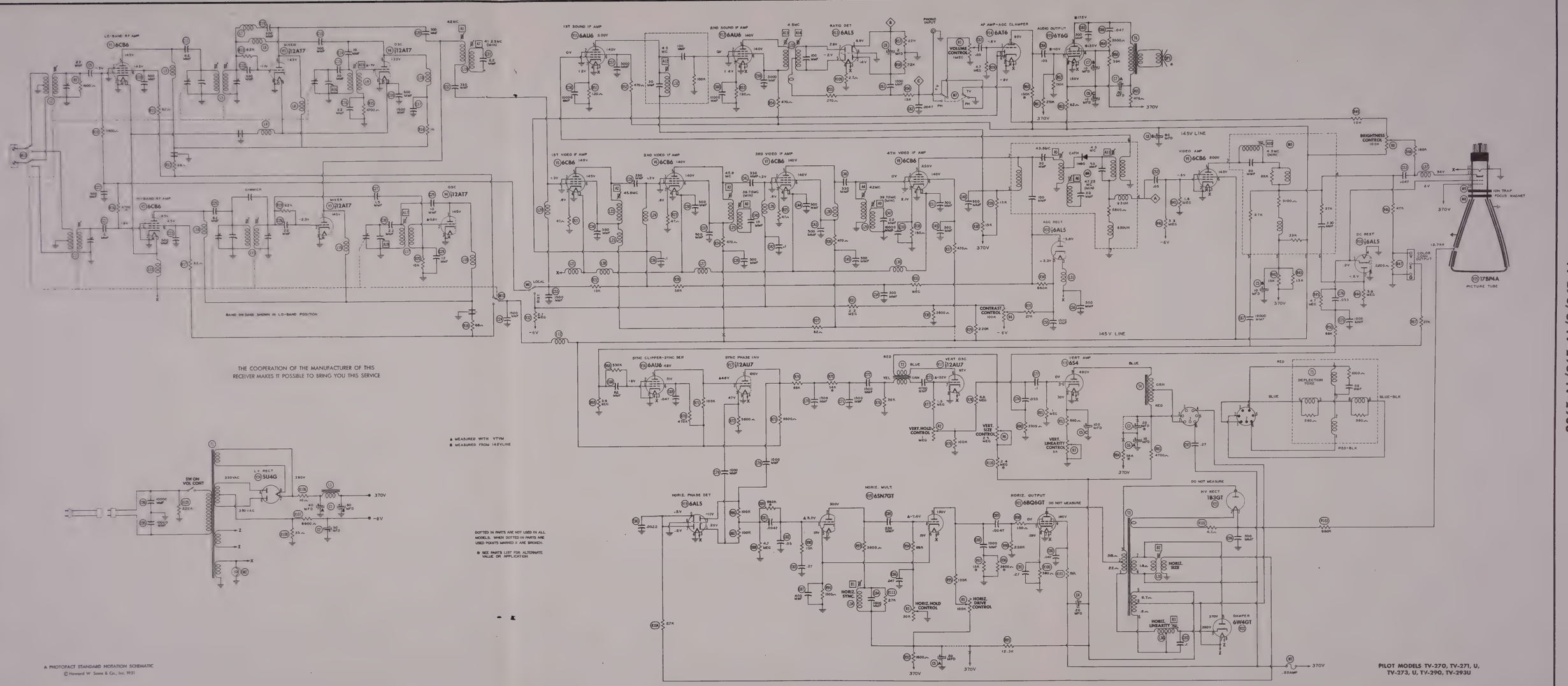

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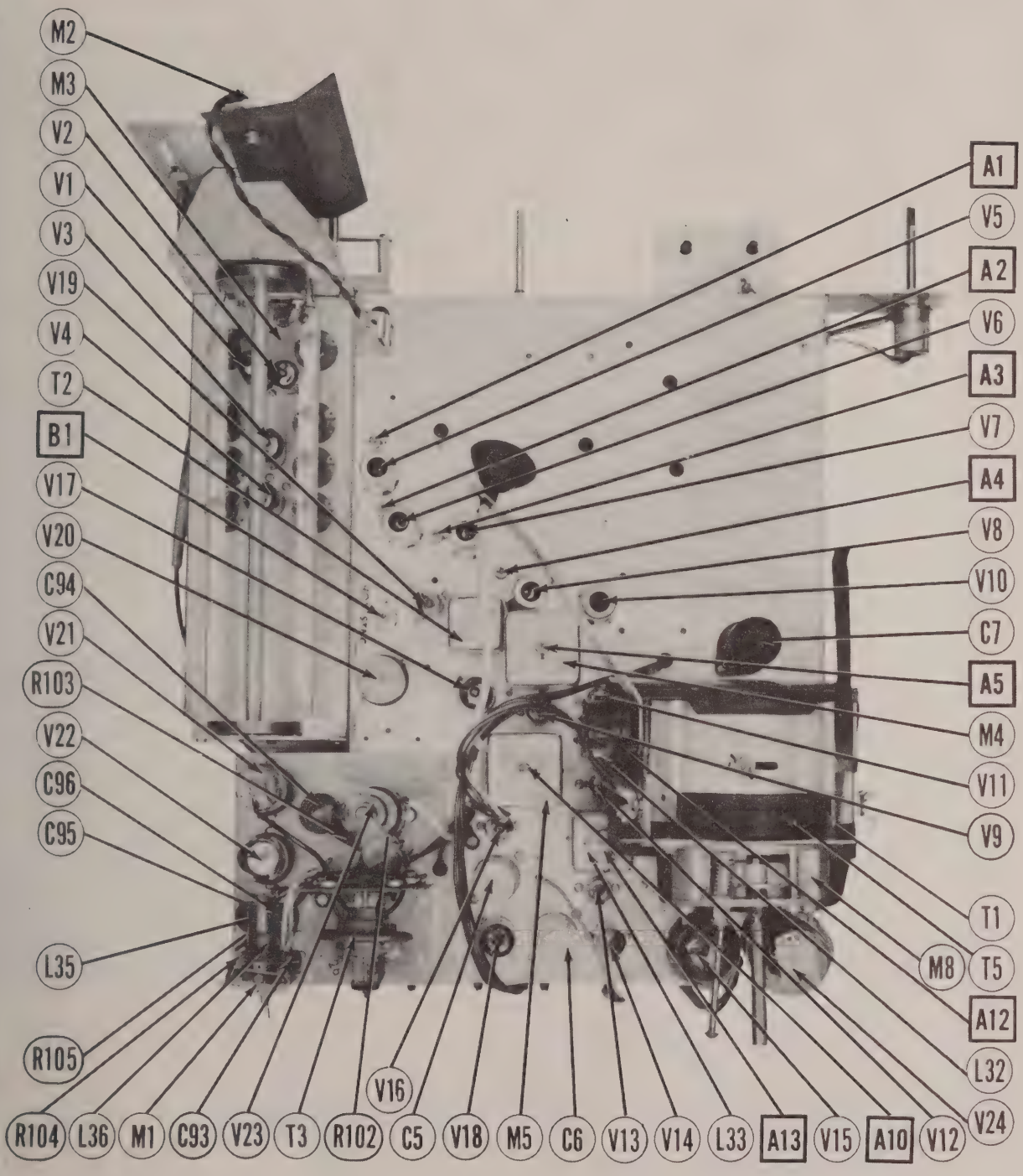
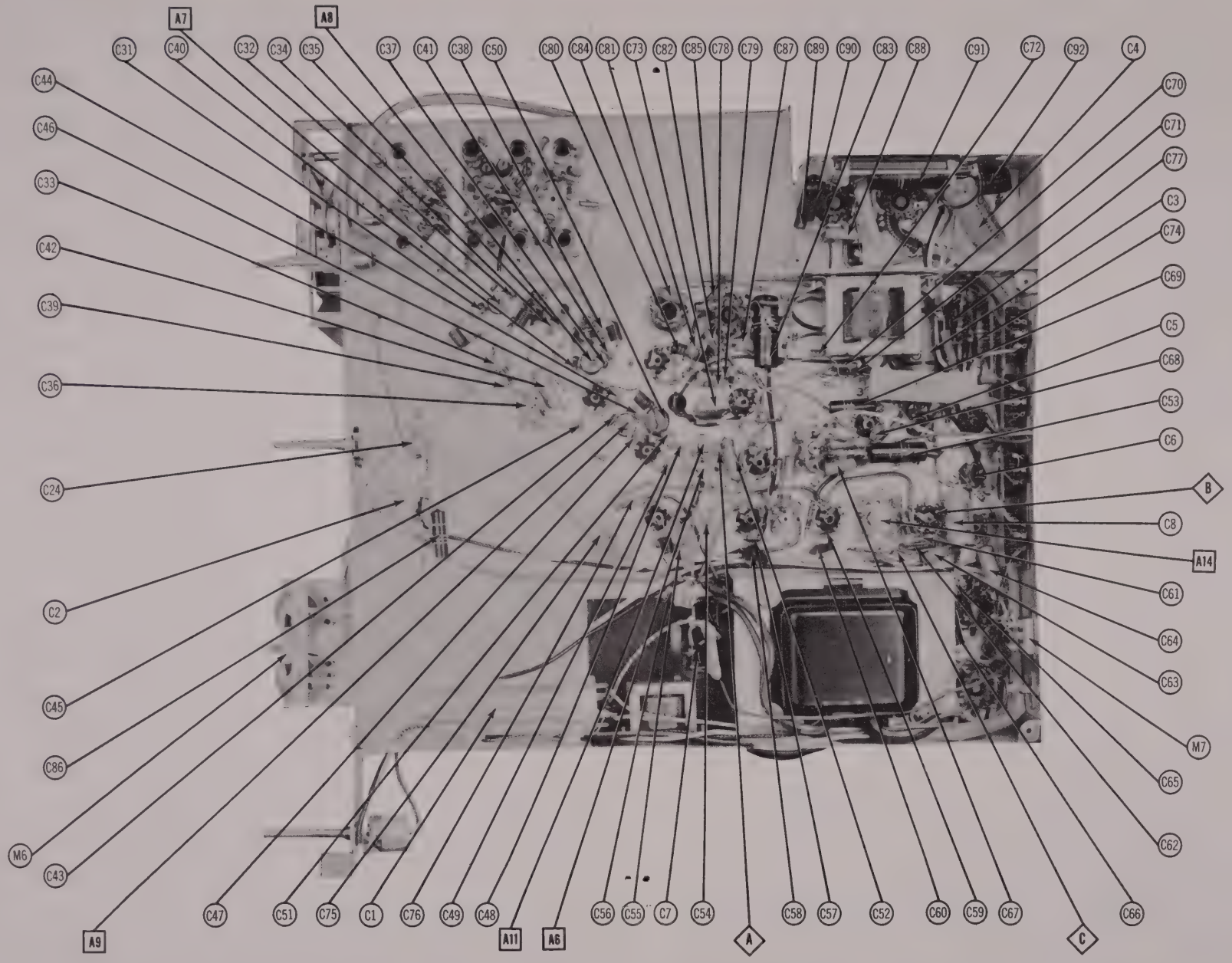
PILOT MODELS TV-270, TV-271, U, TV-273, U, TV-290, TV-293U

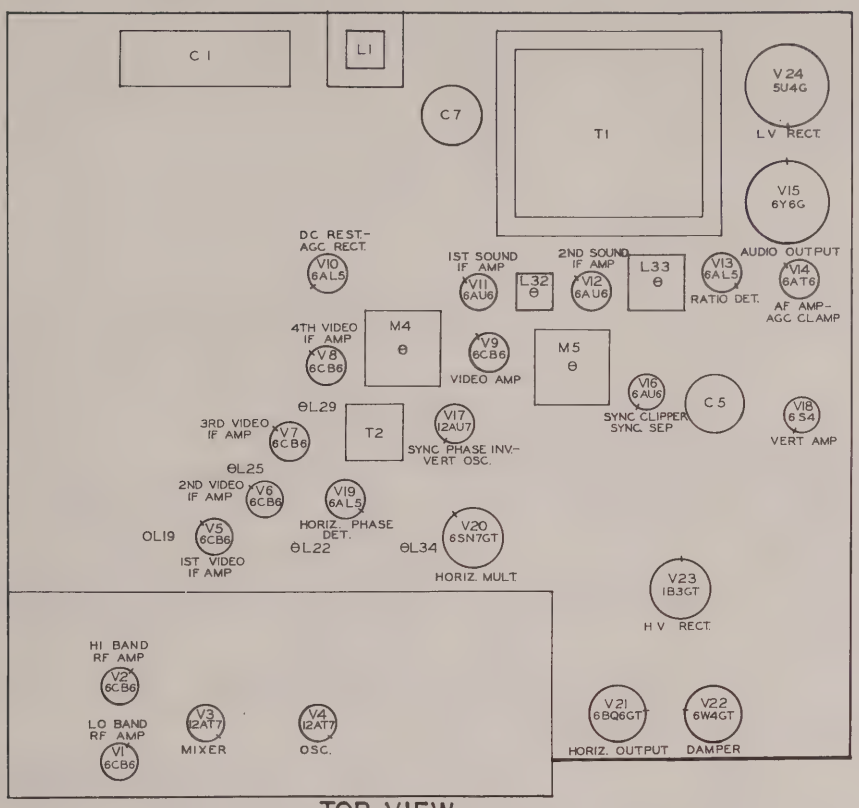
PILOT MODELS TV-270, TV-271, U, TV-273, U, TV-290, TV-293U



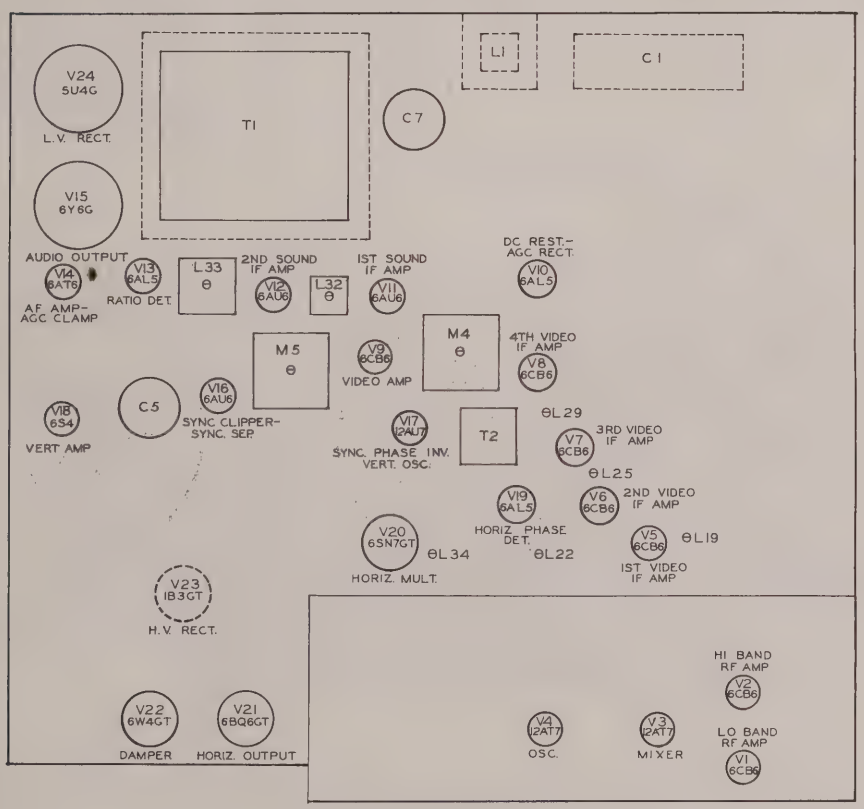
CHASSIS TOP VIEW



CHASSIS BOTTOM VIEW-CAPACITOR AND ALIGNMENT IDENTIFICATION



TOP VIEW



BOTTOM VIEW

TUBE PLACEMENT CHART

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

The high voltage shock hazard may be eliminated by removing the horizontal oscillator tube, (V20), from its socket.

VIDEO IF ALIGNMENT

Remove the local oscillator tube, (V4), from its socket to prevent the possibility of erroneous indications.
Turn the contrast control to maximum.

1.	Direct	High side to an ungrounded tube shield floating over mixer tube, (V3). Low side to chassis.	42MC	Any	DC Probe to Point (A). Common to chassis.	A1	Adjust for maximum deflection.
2.	"	"	45.6MC	"	"	A2	"
3.	"	"	45.8MC	"	"	A3	"
4.	"	"	42MC	"	"	A4	"
5.	"	"	43.5MC	"	"	A5	"
6.	"	"	47.25MC	"	"	A6	Adjust for MINIMUM deflection.
7.	"		41.25MC	"	"	A7	"
8.	"	"	39.75MC	"	"	A8, A9	"

OVERALL VIDEO IF RESPONSE CHECK

Turn the contrast control to the mid-position of its range.
Keep the sweep generator as low as possible to prevent overloading the IF stages.
Connect the synchronized sweep voltage from the signal generator to the horizontal input of the oscilloscope for horizontal deflection.

9.	Direct	High side to an ungrounded tube shield floating over mixer tube, (V3), Low side to chassis.	44MC (10MC SWP)	41.25MC 42.3MC 45.75MC	Any	Vert. Amp. to Point (A). Low side to chassis.		Check for response curve similar to Fig. 1. If necessary retouch A1 thru A5 for proper response.

4.5 MC TRAP ADJUSTMENT

10.	.01MFD	High side to Pin 1, (Grid), of 6CB6, (V9). Low side to chassis.	Not used	4.5MC (400∿ Mod.)	Any channel not used locally.	Vert. Amp. to Pin 11 of picture tube. Low side to chassis.	A10	Adjust for MINIMUM 400∿ indication on scope.

FM IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

11.	.01MFD	High side to Point A. Low side to chassis.	4.5 MC (Unmod.)	Any channel not used locally	DC probe to Point (B). Common to chassis		A11, A12 A13	Adjust for maximum deflection.
12.	"	"	"	"	DC probe to Point (C). Common to chassis.		A14	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

SOUND IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated signal with 60∿ modulation and 450KC sweep. Use 120∿ sawtooth voltage in scope for horizontal deflection.

11.	.01MFD	High side to Point A. Low side to chassis.	4.5MC (450KC SWP)	4.5MC	Any channel not used locally.	Vert. Amp. to Point (B). Low side to chassis.	A11, A12 A13	Disconnect stabilizor capacitor C8. Adjust for maximum amplitude and symmetry as per Fig. 2.
12.	"	"	"	"	"	Vert. Amp. to Point (C). Low side to chassis.	A14	Adjust A14 so 4.5MC occurs at center of crossover lines as per Fig. 3. SLIGHTLY retouch A13 for maximum amplitude and straightness of crossover lines.

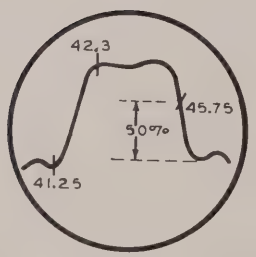


FIG. 1

FIG. 2

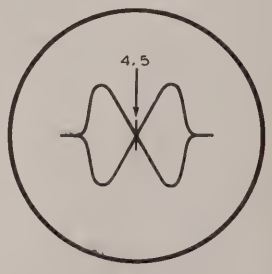


FIG. 3

ALIGNMENT INSTRUCTIONS (CONT.)

OSCILLATOR ALIGNMENT

Replace the oscillator tube in its socket.

LOW BAND OSCILLATOR ALIGNMENT

During low band alignment keep the tuner on the channel 2-6 scale.

13.	Two 120Ω carbon resistors	Across antenna terminals with 120Ω in each lead.	Not used	100MC	Tuning gang fully closed. (low band)	Vert. Amp. thru detector, (fig. 4), to pin 1, (Grid), of first video IF Amp. (V5). Low side to chassis.	A15	Adjust for zero beat indication on scope. This will be indicated by a narrow trace between two wide traces.
14.	"	"	"	120MC	Tuning gang fully open. (low band)	"	A16	Adjust for zero beat indication on scope. This will be indicated by a narrow trace between two wide traces. Repeat steps 13 & 14 until oscillator frequency is correct at both ends of low band range.

HIGH BAND OSCILLATOR ALIGNMENT

During high band alignment keep the tuner on the channel 2-13 scale.

15.	Two 120Ω carbon resistors	Across antenna terminals with 120Ω in each lead.	Not used	220MC	Tuning gang fully closed. (high band)	Vert. Amp. thru detector (fig. 4), to pin 1, (grid) of first video IF Amp. (V5). Low side to chassis.	A17	Adjust for zero beat indication, as in step 14.
16.	"	"	"	259MC	Tuning gang fully open (high band)		A18	Adjust for zero beat indication as in step 14. Repeat steps 15 & 16 until oscillator frequency is correct at both ends of high band range.

THE RF PORTION OF THIS TUNER HAS BEEN PROPERLY ALIGNED AT THE FACTORY AND IS VERY STABLE. ALIGNMENT OF THIS PORTION SHOULD NOT BE REQUIRED IN THE FIELD.

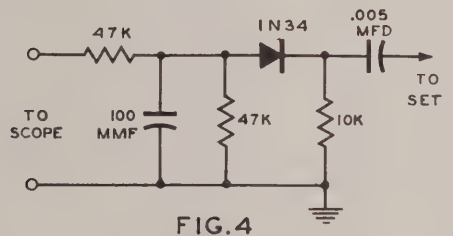
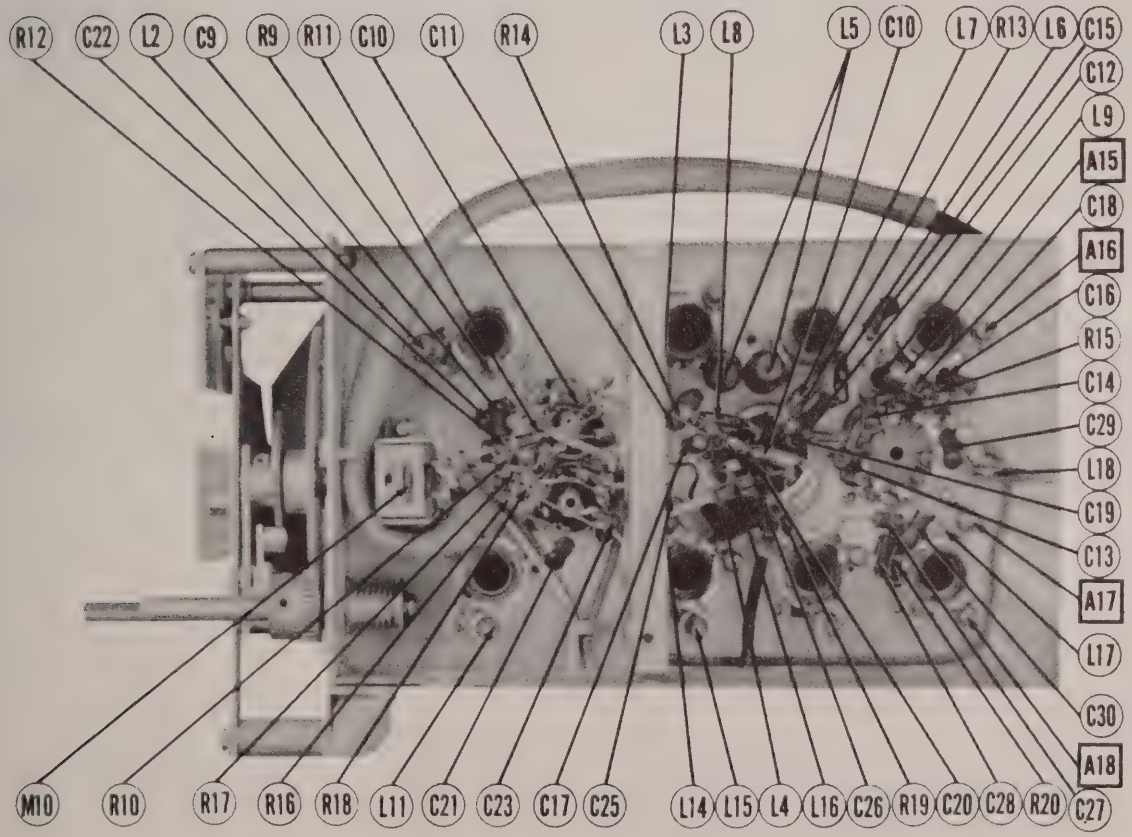


FIG. 4



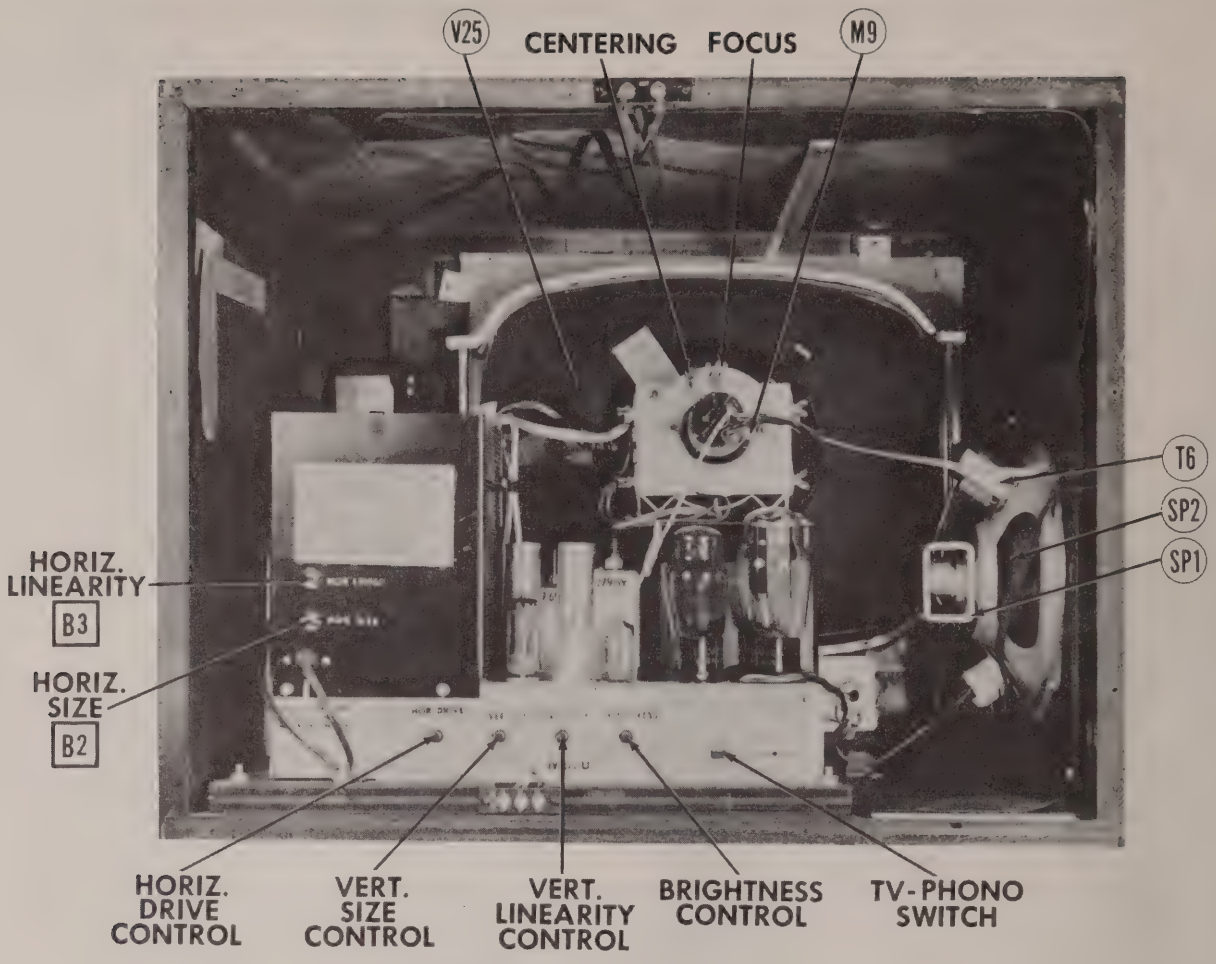
RF TUNER

RESISTANCE MEASUREMENTS

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6CB6	1.9Meg	0Ω	.1Ω	0Ω	■68Ω	■82Ω	0Ω		
V 2	6CB6	1.9Meg	0Ω	.1Ω	0Ω	◓■68Ω	◓■82Ω	0Ω		
V 3	12AT7	◓■68Ω	82KΩ	0Ω	0Ω	0Ω	■68Ω	82KΩ	0Ω	.1Ω
V 4	12AT7	◓■68Ω	10KΩ	0Ω	0Ω	0Ω	■1.1KΩ	4.7KΩ	0Ω	.1Ω
V 5	6CB6	1.9Meg	47Ω	.1Ω	0Ω	■1Ω	■1Ω	0Ω		
V 6	6CB6	1.9Meg	47Ω	.1Ω	0Ω	■470Ω	■470Ω	0Ω		
V 7	6CB6	1.3Meg	47Ω	.1Ω	0Ω	■550Ω	■550Ω	0Ω		
V 8	6CB6	.1Ω	180Ω	.1Ω	0Ω	†7.5KΩ	■550Ω	0Ω		
V 9	6CB6	1.2Meg	0Ω	.1Ω	0Ω	†11KΩ	■0Ω	0Ω		
V 10	6AL5	4.8Meg	725KΩ	.1Ω	0Ω	45KΩ	0Ω	3.9Meg		
V 11	6AU6	2.4Ω	0Ω	.1Ω	0Ω	†7.5KΩ	■470Ω	120Ω		
V 12	6AU6	100KΩ	0Ω	.1Ω	0Ω	■470Ω	■470Ω	120Ω		
V 13	6AL5	22KΩ	22KΩ	.1Ω	1.8Ω	1Meg	0Ω	1Meg		
V 14	6AT6	4.7Meg	0Ω	.1Ω	0Ω	1.9Meg	1.9Meg	■150KΩ		
V 15	6Y6G	†44Ω	.1Ω	†715Ω	†40KΩ	110KΩ	†0Ω	0Ω	27KΩ	
V 16	6AU6	4.2Meg	0Ω	.1Ω	0Ω	■100KΩ	■470KΩ	0Ω		
V 17	12AU7	■6.8KΩ	■100KΩ	5.6KΩ	.1Ω	.1Ω	#2.7Meg	1.8Meg	0Ω	0Ω
V 18	6S4	Inf.	1.2KΩ	1Meg	0Ω	.1Ω	1Meg	Inf.	Inf.	#5.8KΩ
V 19	6AL5	4.8Meg	4.8Meg	.1Ω	0Ω	27KΩ	0Ω	27KΩ		
V 20	6SN7GT	5.1Meg	†7.4KΩ	1.5KΩ	100KΩ	†160KΩ	1.5KΩ	0Ω	.1Ω	
V 21	6BQ6GT	3.4KΩ	.1Ω	160KΩ	†15KΩ	220KΩ	220KΩ	0Ω	300Ω	TOP CAP #30Ω
V 22	6W4GT	Inf.	Inf.	40KΩ	Inf.	†90Ω	Inf.	#3Ω	#2.8Ω	
V 23	1B3GT	PINS 1-8 HAVE INF. RESISTANCE								TOP CAP #5.0Ω
V 24	5U4G	30KΩ	30KΩ	Inf.	70Ω	Inf.	71Ω	Inf.	30KΩ	
V 25	17BP4A	0Ω	4.8Meg.	PIN 10 †75Ω	PIN 11 ■205KΩ	PIN 12 .1Ω				

ALL CONTROLS SET FOR NORMAL OPERATION
ALL MEASUREMENTS TAKEN IN LOW BAND POSITION UNLESS NOTED
LOCAL - DISTANCE SWITCH IN "LOCAL" POSITION
† MEASURED FROM PIN 2 OF V24
■ MEASURED FROM 145VDC LINE
MEASURED FROM PIN 3 OF V22
◓ MEASURED IN HIGH BAND POSITION



CABINET-REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Turn the set on and tune in a TV station, preferably a test pattern.

Turn the horizontal hold control to the mid-position of its range.

Adjust the horizontal synchronization slug, (B1), to the center of the range over which the picture synchronizes horizontally.

Adjust the horizontal drive control clockwise as far as possible without crowding or bright vertical lines appearing in the picture.

Adjust the horizontal size slug, (B2), until the picture is slightly wider than necessary to fill the mask.

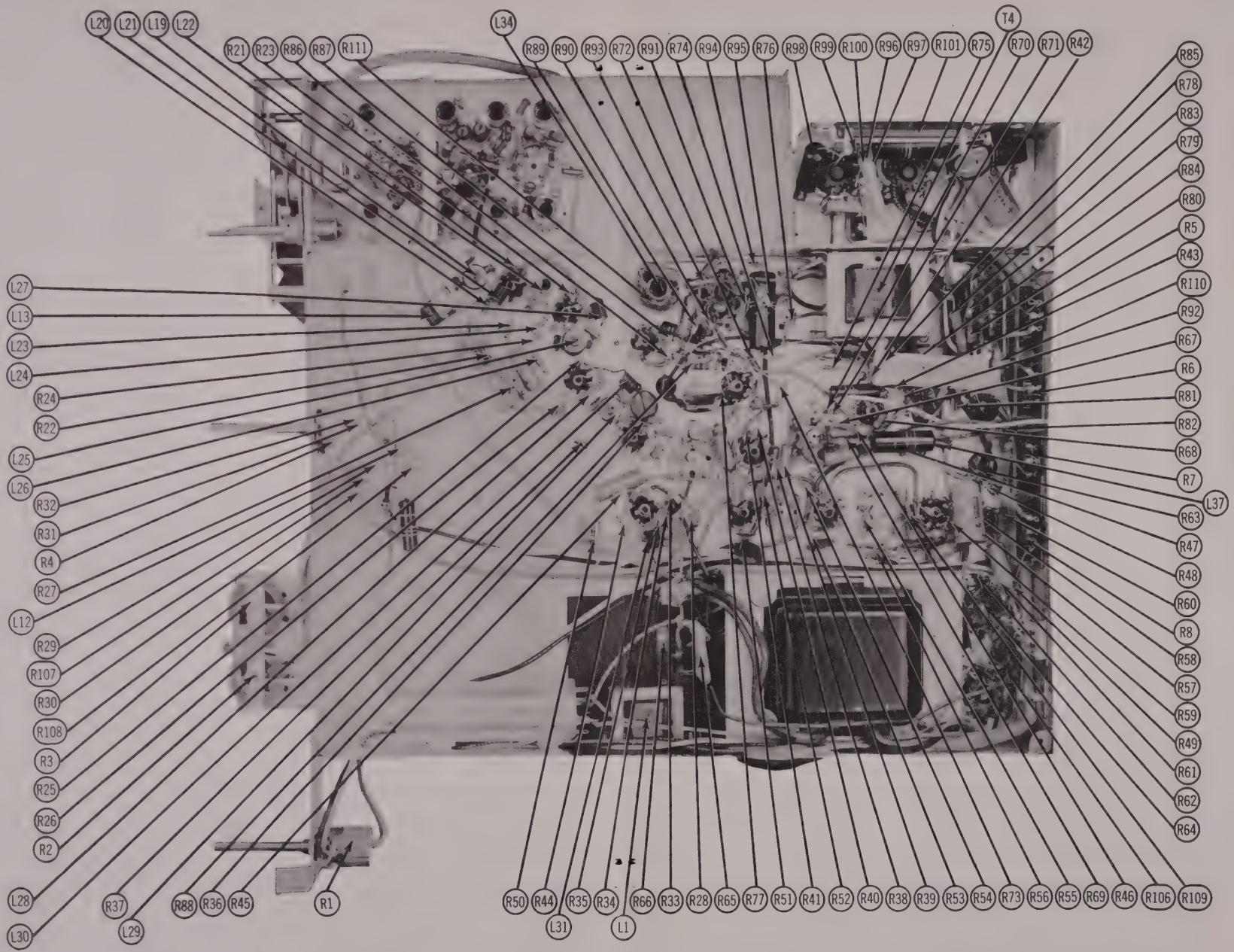
Adjust the horizontal linearity slug, (B3), until the picture is symmetrical from left to right.

Since both width and horizontal linearity are effected by the drive control, it may be necessary to adjust them alternately for optimum results.

DISASSEMBLY INSTRUCTIONS

1. Remove three push-on type control knobs.
2. Remove eight wood screws from rear cover. Remove rear cover.
3. Remove four wood screws from speaker. Remove speaker.
4. Disconnect built-in antenna.
5. Remove antenna terminal strip.
6. Remove three metal bolts from chassis and one wood screw from picture tube guard. Remove chassis.

NOTE: FOR PICTURE TUBE REMOVAL IT IS NECESSARY TO REMOVE THE CHASSIS AS OUTLINED ABOVE.



CHASSIS BOTTOM VIEW-RESISTOR AND INDUCTOR IDENTIFICATION

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: PILOT PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	NOTES
V1	Low Band RF Amp.	6CB6	6CB6	7CM	
V2	High Band RF Amp.	6CB6	6CB6	7CM	
V3	Mixer	12AT7	12AT7	9A	
V4	Oscillator	12AT7	12AT7	9A	
V5	1st. Video IF Amp.	6CB6	6CB6	7CM	
V6	2nd. Video IF Amp.	6CB6	6CB6	7CM	
V7	3rd. Video IF Amp.	6CB6	6CB6	7CM	
V8	4th. Video IF Amp.	6CB6	6CB6	7CM	
V9	Video Amplifier	6CB6	6CB6	7CM	
V10	DC Restorer-AGC Rectifier	6AL5	6AL5	6BT	
V11	1st. Sound IF Amp.	6AU6	6AU6	7BK	
V12	2nd. Sound IF Amp.	6AU6	6AU6	7BK	
V13	Ratio Detector	6AL5	6AL5	6BT	
V14	AF Amplifier-AGC Clamp	6AT6	6AT6	7BT	
V15	Audio Output	6Y6G	6Y6G	7AC	
V16	Sync Clipper-Sync Separator	6AU6	6AU6	7BK	
V17	Sync Phase Inv.-Vert. Oscillator	12AU7	12AU7	9A	
V18	Vert. Amplifier	6S4	6S4	9AC	
V19	Horiz. Phase Det.	6AL5	6AL5	6BT	
V20	Horizontal Mult.	6SN7GT	6SN7GT	8BD	
V21	Horiz. Output	6BQ6GT	6BQ6GT	6AM	
V22	Damper	6W4GT	6W4GT	4CG	
V23	HV Rectifier	1B3GT	1B3GT	3C	
V24	LV Rectifier	5U4G	5U4G	5T	

CATHODE-RAY TUBE

ITEM No.	REPLACEMENT DATA: PILOT PART No	SYLVANIA PART No.	THOMAS PART No.	RTMA BASE TYPE	NOTES
V25	17BP4A	17BP4A	17BP4	12D	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: PILOT PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C1A	40	475	24-107	AFH2-73		UP8445		TVL-2850	▲ Filter
B	80	475							▲ Filter
C2	50	25	24-30	PRS25/50		BR502A		TVA-1206	Bias Filter
C3	20	250	24-96	PRS250/20		BR2025		TVA-1508	Vert. Amp. Dec. †
C4	20	250	24-96	PRS250/20		BR2025		TVA-1508	Decoupling
C5A	20	475	24-103	AFH3-157		UPT2150-V10		TVL-3835 TVA-1207	■ Horiz. MV Decoup. ▲ Video Amp. Dec.
B	10	475							Vert. Output Cathode
C	100	25							
C6A	10	475	24-108	AFH2-19		UPT150-8115		TVL-4806	■ Decoupling
B	80	150		PRS500/10					▲ Decoupling
C	10	150							Audio Output Cathode
C7A	20	350	24-109	AFH3-50		UP2145		TVL-3634	■ Audio Output Plate
B	10	350							▲ Audio Output Screen
C8	2	150	24-104	PRS150/4		BR245		TVA-1402	Stabilizing Cap.
C9	33				TCZ-22		NP0K-220	5TCC-Q22	RF Coupling (Lo-band)
C10	500			SI500	D6-501		GP2K-501	5GA-T5	RF Amp. Screen (Lo-band)
C11	82			SI82			GP1K-820		RF Coupling (Lo-band)
C12	330			SI330	D6-331		GP2K-331	5GA-T33	RF Coupling (Lo-band)
C13	500			SI500	D6-501		GP2K-501	5GA-T5	Osc. Coupling (Lo-band)
C14	10								Osc. Feedback (Lo-band)
C15	30						N470K-300		Fixed Padder (Lo-band)
C16	22				TCZ-22		NP0K-220	5TCC-Q22	Osc. Grid Cap. (Lo-band)
C17	1500			[illegible]	D6-152		GP2L-152	5HK-D15	Osc. Plate Dec. (Lo -band)
C18	500			SI500	D6-501		GP2K-501	5GA-T5	FIL. Bypass (Lo-band)
C19	330			SI330	D6-331		GP2K-331	5GA-T33	RF Coupling (Lo-band)
C20	500			SI500	D6-501		GP2K-501	5GA-T5	IF Coupling (Lo-band)
C21	12				TCZ-12		NP0K-120		RF Coupling (Hi-band)
C22	500			SI500	D6-501		GP2K-501	5GA-T5	AGC Filter
C23	500			SI500	D6-501		GP2K-501	5GA-T5	RF Amp. Screen (Hi-band)
C24	1500			SI500	D6-152		GP2L-152	5HK-D15	RF Bypass
C25	82			SI82			GP1K-820		RF Coupling (Hi-band)
C26	22				TCZ-22		NP0K-220	5TCC-Q22	RF Coupling (Hi-band)
C27	1.5			SI1.5NP0	TCZ-1.5		NP0K-1R5		Osc. Coupling (Hi-band)
C28	12				TCZ-12		NP0K-120		Osc. Grid Grip. (Hi-band)
C29	10								Osc. Feedback (Hi-band)
C30	22						N220K-220		Fixed Padder (Hi-band)
C31	22				TCZ-22		NP0K-220	5TCC-Q22	Fixed Trimmer
C32	330			SI330	D6-331		GP2K-331	5GA-T33	IF Coupling
C33	1500			SI500	D6-152	1W5D15	GP2L-152	5HK-D15	AGC Filter
C34	1500			SI500	D6-152	1W5D15	GP2L-152	5HK-D15	1st. Video IF Decoupling
C35	330			SI330	D6-331		GP2K-331	5GA-T33	IF Coupling
C36	.1	200		P288-1	DF-104	PTE4P1		2TM-P1	AGC Filter
C37	500			SI500	D6-501	5W5T5	GP2K-501	5GA-T5	2nd. Video IF Dec.
C38	500			SI500	D6-501	5W5T5	GP2K-501	5GA-T5	2nd. Video IF Fil.
C39	500			SI500	D6-501	5W5T5	GP2K-501	5GA-T5	RF Bypass
C40	15				TCZ-15		NP0K-150	5TCC-Q15	Fixed Trimmer
C41	330			SI330	D6-331		GP2K-331	5GA-T33	IF Coupling
C42	.1	200		P288-1	DF-104	PTE4P1		2TM-P1	AGC Filter
C43	500			SI500	D6-501	5W5T5	GP2K-501	5GA-T5	3rd. Video IF Dec.
C44	500			SI500	D6-501	5W5T5	GP2K-501	5GA-T5	3rd. Video IF Fil.
C45	500			SI500	D6-501	5W5T5	GP2K-501	5GA-T5	RF Bypass
C46	330			SI330	D6-331		GP2K-331	5GA-T33	IF Coupling
C47	22				TCZ-22		NP0K-220	5TCC-Q22	Fixed Trimmer
C48	500			SI500	D6-501	5W5T5	GP2K-501	5GA-T5	4th. Video IF Plate
C49	500			SI500	D6-501	5W5T5	GP2K-501	5GA-T5	4th. Video IF Screen
C50	10000			BPD-01	DD-103	1D3S1	821-01	5HK-S1	4th. Video IF Cathode
C51	500			SI500	D6-501	5W5T5	GP2K-501	5GA-T5	4th. Video IF Fil.
C52	.05	200		P288-05	DF-503	PTE4S5		2TM-S5	Video Coupling
C53	.047	600		P688-647	DF-503	PTE4S5		6TM-S47	Video Coupling
C54	500			SI500	D6-501	5W5T5	GP2K-501	5GA-T5	AGC Filter
C55	1500			SI1500	D6-152	1W5D15	GP2L-152	5HK-D15	AGC Filter
C56	500			SI500	D6-501	5W5T5	GP2K-501	5GA-T5	AGC Rectifier Fil.
C57	5000			BPD-005	DD-502	1D5D5	811-005	5HK-D5	1st. Sound IF Screen

CAPACITORS (CONT.)

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: PILOT PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C58	10000			BPD-01	DD-103	1D3S1	821-01	5HK-S1	1st. Sound IF Cathode
C59	5000			BPD-005	DD-502	1D5D5	811-005	5HK-D5	2nd. Sound IF Dec.
C60	10000			BPD-01	DD-103	1D3S1	821-01	5HK-S1	2nd. Sound IF Cathode
C61	1000			SI1000	D6-102	1W5D1	GP2L-102	5HK-D1	RF Bypass
C62	.0047	400		P688-0047	D6-472	PTE6D5	GP2-333-472	6TM-D47	De-emphasis
C63	.05	200		P288-05	DF-503	PTE4S5		2TM-S5	Audio Coupling
C64	.05	400		P488-05	DF-503	PTE4S5		4TM-S5	Audio Coupling
C65	300	1000							Audio Output Plate
C66	.047	600		P588-047	DF-503	PTE6S5		6TM-S47	Audio Output Plate
C67	10000	500		1464-001	DF-104	1D3S1	821-01	1FM-11	Sync. Coupling
C68	82			SI82			GP1K-820		Sync. Coupling
C69	.047	200		P288-047	DF-503	PTE4S5		2TM-S47	Sync. Sep. Screen
C70	1500			SI1500	D6-152	1W5D15	GP2L-152	5HK-D15	Vert. Integrator Net.
C71	1500			SI1500	D6-152	1W5D15	GP2L-152	5HK-D15	Vert. Integrator Net.
C72	1500			SI1500	D6-152	1W5D15		5HK-D15	Vert. Sync. Coupling
C73	4700	500		1464-005		1DR5D5		MS-25	Vert. Osc. Grid Cap.
C74	.033	600		P688-033		PTE6S3		6TM-S3	Vert. Discharge
C75	1500			SI1500	D6-152	1W5D15	GP2L-152	5HK-D15	Integrator Net.
C76	.033	600		P688-033		PTE6S3		6TM-S3	Vert. Sweep Coupling
C77	.1	600		P686-1	DF-104	PTE6P1		6TM-P1	Vert. Sweep Coupling
C78	1000			SI1000	D6-102	1W5D1	GP2L-102	5HK-D1	Horiz. Sync. Coupling
C79	1000			SI1000	D6-102	1W5D1	GP2L-102	5HK-D1	Horiz. Sync. Coupling
C80	.0022	400		P688-0022	D6-222	PTE6D2	GP2-333-222	6TM-D22	Voltage Divider
C81	.0047	400		P688-0047	D6-472	PTE6D5	GP2-333-472	6TM-D47	AFC Filter
C82	.05	200		P288-05	DF-503	PTE4S5		2TM-S5	Horiz. MV Grid
C83	.22	200		P488-22		GT2P25		2TM-P22	Horiz. MV Grid
C84	3600	500							Fixed Trimmer
C85	250	500		1469-00025		5R5T25			Horiz. MV Feedback
C86	.047	200		P288-047	DF-503	PTE4S5		2TM-S47	Horiz. MV Grid
C87	400	500		1469-0004		5R5T4		MS-34	Horiz. MV Cathode
C88	1000	500		1464-001		1R5D1		MS-21	Horiz. Discharge
C89	.0047	600		P688-0047	D6-472	PTE6D5	GP2-333-472	6TM-D47	Horiz. Sweep Coupling
C90	.047	600		P688-047	DF-503	PTE6S5		6TM-S47	Horiz. Output Screen
C91	.22	200		P488-22		GT2P25		2TM-P22	Horiz. Output Cathode
C92	.22	200		P488-22		GT2P25		2TM-P22	Horiz. Sweep Coupling
C93	.1	200		P288-1	DF-104	PTE4P1		2TM-P1	Fixed Trimmer
C94	500	20000		HV20A	TV1-502				HV Filter
C95	10000			BPD-01	DD-103	1D3S1	821-01	5HK-S1	Line Filter
C96	10000			BPD-01	DD-103	1D3S1	821-01	5HK-S1	Line Filter

† Not used in models TV-271 and TV-273.

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: PILOT PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	INSTALLATION NOTES
R1A	1Meg	½		Q13-137	AG-63-Z	B-70-S	Volume Control
B	Shaft			Not req.	FS-3	Not req.	Attach to R1A per instructions
C	Switch			76-1	SWB	Not req.	Attach to R1A per instructions
R2	1Meg	½					Vertiacal Hold Control
R3	50kΩ	½					Horiz. Hold Control
R4A	100kΩ	½		Q11-128	AG-49-S	B-40	Contrast Control
B	Shaft			Not req.	FS-3	Not req.	Attach to R4A per instructions
R5	100kΩ	½					Horiz. Drive Control
R6	2.5Meg	½					Height Control
R7	5000Ω	½					Vertical Linearity Control
R8	100kΩ	½					Brightness Control

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: PILOT PART No.	IRC PART No.	IDENTIFICATION CODES ALL RESISTORS ± 10% UNLESS OTHERWISE SPECIFIED
R9	1800Ω	½		BTS-1800	Low-Band Ant. Coil Shunt
R10	3900Ω	5%		BTS-3900 5%	Low Band RF Amp. Grid
R11	82Ω	½		BTS-82	Low Band RF Amp. Screen
R12	68Ω	20%			Low Band RF Amp. Plate Decoupling
R13	82kΩ	½		BTS-82K	Low Band Mixer Grid
R14	1000Ω	½		BTS-1000	Low Band Oscillator Decoupling
R15	4700Ω	½		BTS-4700	Low Band Oscillator Grid
R16	4700Ω	½		BTS-4700	High Band RF Amp. Grid
R17	82Ω	½		BTS-82	High Band RF Amp. Screen
R18	68Ω	20%			High Band RF Amp. Plate Decoupling
R19	82kΩ	½		BTS-82K	High Band Mixer Grid
R20	10kΩ	½		BTS-10K	High Band Oscillator Grid
R21	47Ω	½			1st. Video IF Cathode
R22	10kΩ	½		BTS-10K	AGC Network
R23	47Ω	½			2nd. Video IF Cathode
R24	470Ω	½		BTS-470	2nd. Video IF Decoupling
R25	47Ω	½			3rd. Video IF Cathode
R26	470Ω	½		BTS-470	3rd. Video IF Decoupling
R27	82Ω	½		BTS-82	Decoupling
R28	56kΩ	½		BTS-56K	AGC Network
R29	220kΩ	½		BTS-220K	Voltage Divider
R30	5600Ω	½		BTS-5600	Voltage Divider
R31	2.2Meg	½		BTS-2.2Meg	Voltage Divider
R32	2.7Meg	½		BTS-2.7Meg	Voltage Divider
R33	1Meg	½		BTS-1Meg	AGC Network
R34	680kΩ	½		BTS-680K	AGC Network
R35	27kΩ	½		BTS-27K	AGC Network
R36	180Ω	½		BTS-180	4th. Video IF Cathode
R37	470Ω	½		BTS-470	4th. Video IF Screen
R38	15kΩ	2		BTB-15K	Decoupling
R39	15kΩ	2		BTB-15K ▲ ■	Decoupling
R40	3.3Meg	½		BTS-3.3Meg	Bias Network
R41	1.8Meg	½		BTS-1.8Meg	Video Amp. Grid
R42	15kΩ	2		BTB-15K	Voltage Dropping
R43	15kΩ	2		BTB-15K	Voltage Dropping
R44	3.9Meg	½		BTS-3.9Meg	DC Restorer Load
R45	4.7Meg	½		BTS-4.7Meg	Picture Tube Grid
R46	47kΩ	2		BTB-47K	Voltage Divider
R47	2200Ω	½		BTS-2200	Voltage Divider
R48	180kΩ	½		BTS-180K	Picture Tube Cathode
R49	10kΩ	½		BTS-10K	Voltage Divider
R50	68kΩ	½		BTS-68K	Integrator Network
R51	120Ω	½		BTS-120	1st. Sound IF Cathode
R52	470Ω	½		BTS-470	1st. Sound IF Screen
R53	120Ω	½		BTS-120	2nd. Sound IF Cathode

RESISTORS (CONT.)

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: PILOT PART No.	IRC PART No.	IDENTIFICATION CODES
R54	470Ω	½		BTS-470	2nd. Video IF Decoupling
R55	270Ω	½		BTS-270	Balancing
R56	15kΩ	½		BTS-15K	De-emphasis
R57	22kΩ	5% ½		BTS-22K-5%	Ratio Det. Diode Load
R58	22kΩ	5% ½		BTS-22K-5%	Ratio Det. Diode Load
R59	4.7Meg	½		BTS-4.7Meg	AF Amp. Grid
R60	150kΩ	5% ½		BTS-150K	AF Amp. Plate Load - See Note 1
R61	270kΩ	5% 1		BTA-270K-5%	Bias Network
R62	150kΩ	5% ½		BTS-150K	Audio Output Grid
R63	82Ω	½		BTS-82	Audio Output Cathode
R64	3300Ω	½		BTS-3300	Tone Compensation
R65	470Ω	4		1 3/4A-500	Audio Output Plate Decoupling
R66	39kΩ	1		BTA-39K	Audio Output Screen Dropping
R67	27kΩ	½		BTS-27K	Isolation
R68	330kΩ	½		BTS-330K	Sync. Clipper Grid
R69	3.9Meg	½		BTS-3.9Meg	Sync. Clipper Grid
R70	470kΩ	½		BTS-470K	Sync. Clipper Screen
R71	100kΩ	½		BTS-100K	Sync. Clipper Plate Load
R72	5600Ω	½		BTS-5600	Sync. Inv. Cathode
R73	680Ω	½		BTS-680	Sync. Inv. Plate Load
R74	68kΩ	½		BTS-68K	Integrator Network
R75	56kΩ	½		BTS-56K	Integrator Network - See Note 2
R76	39kΩ	½		BTS-39K	Integrator Network
R77	1.5Meg	½		BTS-1.5Meg	Vertical Oscillator Grid
R78	6.8Meg	½		BTS-6.8Meg	Voltage Divider
R79	100kΩ	½		BTS-100K	Voltage Divider
R80	3300Ω	½		BTS-3300	Vertical Peaking
R81	1Meg	½		BTS-1Meg	Vertical Amp. Grid
R82	680Ω	½		BTS-680	Vertical Amp. Cathode
R83	4700Ω	2		BTB-4700	Vertical Amp. Decoupling
R84	56kΩ	½		BTS-56K	Voltage Divider - See Note 3
R85	12,500Ω	10		1 3/4A-12,500	Voltage Divider
R86	100kΩ	½		BTS-100K	Horizontal Detector Diode Load
R87	100kΩ	½		BTS-100K	Horizontal Detector Diode Load
R88	4.7Meg	½		BTS-4.7Meg	Horizontal Detector Diode Load
R89	680kΩ	½		BTS-680K	Isolation - See Note 4
R90	10kΩ	½		BTS-10K	AFC Filter
R91	1500Ω	½		BTS-1500	Horizontal MV Cathode
R92	1800Ω	½		BTS-1800	Horizontal MV Decoupling
R93	5600Ω	1		BTA-5600	Horizontal MV Plate Load
R94	68kΩ	½		BTS-68K	Horizontal MV Grid
R95	100kΩ	½		BTS-100K	Horizontal MV Plate Load
R96	3600Ω 5%	½		BTS-3600-5%	Horizontal Peaking - See Note 5
R97	15kΩ	½		BTS-15K	Horizontal Peaking - See Note 3
R98	150Ω	½			Parasitic Suppressor
R99	220kΩ	½		BTS-220K	Horizontal Output Grid
R100	300Ω	4		1 3/4A-300	Horizontal Output Cathode
R101	15kΩ	10		1 3/4A-15K	Horizontal Output Screen
R102	4.7Ω	½			HV Rectifier Filament
R103	680kΩ	2			HV Filter
R104	27kΩ	1		BTA-27K	AFC Filter
R105	220kΩ	½		BTS-220K	Line Isolation
R106	10Ω	1		BW-1-10	Surge Limiter
R107	6800Ω	½		BTS-6800	Bias Network
R108	33Ω	½		1 3/4A-35	Bias Network
R109	2.7Ω	1		BW-1-2.7	Filament Dropping
R110	2.4Meg	1		BTA-2.4Meg	Voltage Dropping - See Note 6
R112	27kΩ	½		BTS-27K	Horizontal Oscillator Coil Shunt

Note 1 Some models may use a 100kΩ resistor in this application.
Note 2 Some models may use a 68kΩ resistor in this application.
Note 3 Not used in all models.
Note 4 Some models may use a 470kΩ resistor in this application.
Note 5 Some models may use a 3kΩ resistor in this application.
Note 6 Some models may use 22.7MegΩ resistor in this application.

TRANSFORMER (POWER)

ITEM No.	RATING: PRI.	RATING: SEC. 1	RATING: SEC. 2	RATING: SEC. 3	REPLACEMENT DATA: PILOT PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.
T1	117VAC @ 1.0A	760VCT @ .230A	5VAC @ 3.0A	6.3VAC @ 1.2A SEC. 4 6.3VAC @ 10A	55-25		P-3087	

TRANSFORMER (SWEEP CIRCUITS)

ITEM No.	RATING: DC RESISTANCE PRI.	RATING: DC RESISTANCE SEC.	REPLACEMENT DATA: PILOT PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	NOTES
T2	180Ω	100Ω	56-32	A-8122	A-4000 ①	TBO-2	Vert. Blocking Osc.
T3	540Ω Tapped @ 22Ω	7.3Ω Tapped @ 6.7Ω	56-33		HVO-7		Horiz. Output Trans.
	SEC. 2 1.8Ω	SEC. 3 0Ω					
T4	1300Ω Tapped @ 12Ω		56-34	A-8112	A-3037	TSO-5 ①	Vert. Output Trans.
T5A B	480Ω		279-67	DY-8	MDF-70		Horiz. Deflection Coils Vert. Deflection Coils

① Drill new mounting holes.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: PILOT PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	INSTALLATION NOTES
T6	2.5kΩ	3.4Ω	170Ω	.9Ω	Part of 41-35	A-3876 ①	A-3018	RO-2	① Drill new mounting holes.

PARTS LIST CONTINUED ON PAGE 15

PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			NOTES
	FIELD RES.	V. C. IMP.	PILOT PART No.	VIKING PART No.	QUAM PART No.	
SP1A	PM	3.4Ω	41-35	8J9	8A21	Used in Models TV-271 and TV-271U
B	PM	3.4Ω	41-36	12J12	12A4A	Used in Models TV-273, TV-273U and TV-293U
	CONE DIA.	V. C. DIA.				
SP2A	7½"	9/16"				
B	11½"	1"				

FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA				INSTALLATION NOTES
	TOTAL DIRECT CURRENT	D. C. RESISTANCE	INDUCTANCE (0 CURRENT 1000 ~)	PILOT PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	
L1	.230A	65Ω	.8 Henry	57-13	C-2326 ①	C-2991 ①	TR-3300 ①	① Drill mounting holes

COILS (RF-IF)

ITEM No.	USE	DC RES.		REPLACEMENT DATA		NOTES
		PRI.	SEC.	PILOT PART No.	IRC PART No.	
L2	Ant. Coil	.2Ω	.1Ω	270-45		Low-Band
L3	RF Choke	1Ω		75-33		
L4	Fil. Choke	3Ω		75-43		
L5A	RF Coil	0Ω		71-35		Low-Band (Pri.)
B	RF Coil		0Ω			Low-Band (Sec.)
L6	RF Choke	.3Ω		75-47		
L7	RF Choke	1.8Ω		75-44		
L8	RF Choke	1.1Ω		75-33		
L9	Osc. Coil	0Ω	0Ω	272-54		Low-Band
L10	RF Choke	1.1Ω		75-33		
L11	Ant. Coil	0Ω	0Ω	270-49		High-Band
L12	RF Choke	1.1Ω		75-33		
L13	Fil. Choke	0Ω		75-43		
L14	RF Choke	1.1Ω		75-33		
L15A	RF Coil	0Ω		271-29		High Band (Pri.)
B	RF Coil		0Ω			High Band (Sec.)
L16	RF Choke	1.1Ω		75-33		
L17	Osc. Coil	0Ω	0Ω	272-55		High Band
L18	RF Choke	1.1Ω		75-33		
L19	1st. Video IF	.2Ω		273-142		Includes Trap 0Ω
L20	RF Choke	1.1Ω		75-33		
L12	Fil. Choke	0Ω		75-43		
L22	2nd. Video IF	.1Ω		273-143		
L23	RF Choke	1.1Ω		75-33		
L24	RF Choke	1.1Ω		75-33		
L25	3rd. Video IF	.1Ω		273-144		Includes Trap 0Ω
L26	RF Choke	1.1Ω		75-33		
L27	Fil. Choke	0Ω		75-43		
L28	RF Choke	1.1Ω		75-33		
L29	4th. Video IF	.1Ω		273-145		Includes Trap 0Ω
L30	Fil. Choke	0Ω		75-43		
L31	Fil. Choke	0Ω		75-43		
L32	Sound IF	1.8Ω		273-147		Includes 100MMF, 30MMF. Cap. and 100K resistor
L33	Ratio Det. Trans.	9Ω	1.2Ω	279-39		Includes 100MMF. Cap. 1.5Ω
L34	Horiz. Osc.	130Ω		72-66		
L35	Horiz. Size	3.7Ω	28Ω	79-98		
L36	Horiz. Lin.	8Ω	2.2Ω	79-97		
L37	Cath. Choke	2Ω		75-28		

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA				REMARKS
			PILOT PART No.		LITTELFUSE PART No.		
			FUSE	HOLDER	FUSE	HOLDER	
M1	3AG Slo Blo	1/4A	111-9		318.250		

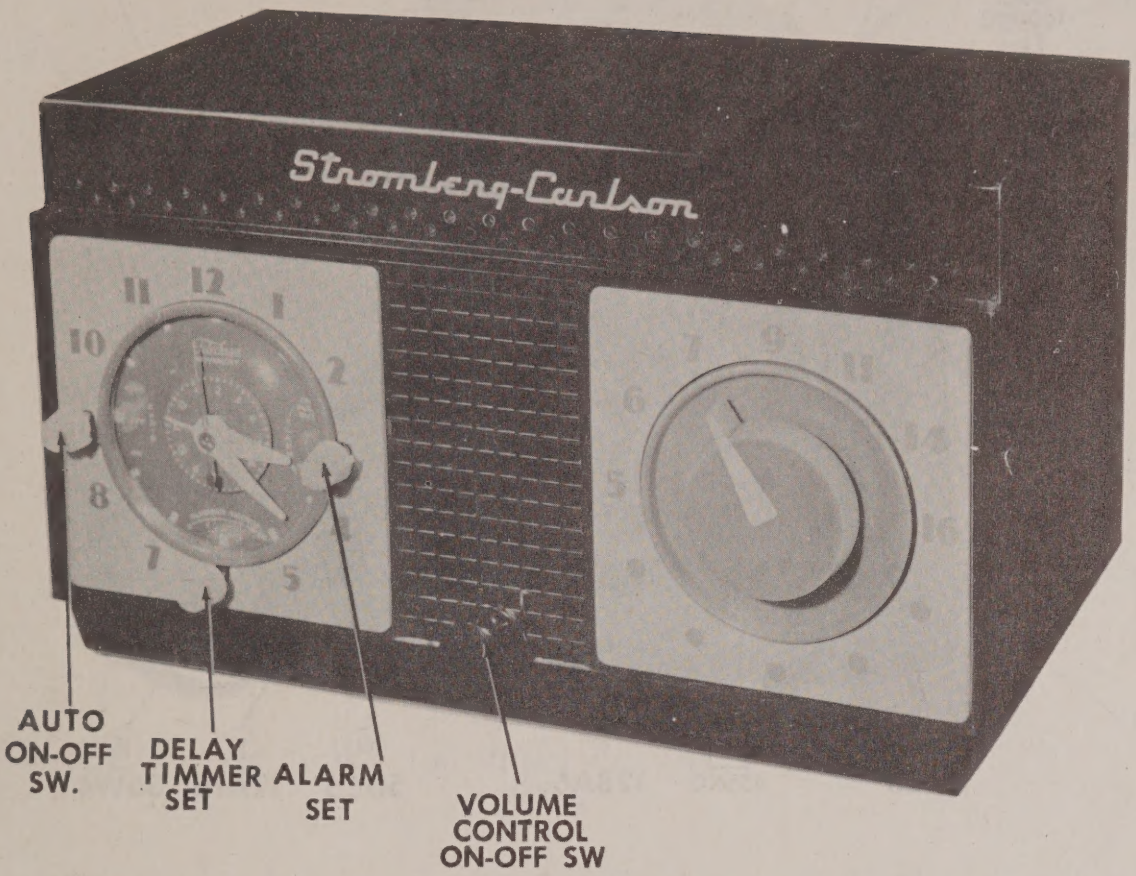
DIAL LIGHTS

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		NOTES
					PILOT PART No.		
M2	Bayonet	6-8	.15	Brown			Type # 47

MISCELLANEOUS

ITEM No.	PART NAME	PILOT PART No.	NOTES
M3	RF Tuner		
M4	RF Choke	75-33	Video Det. Assembly Complete - Part # 279-65
	Capacitor		50 MMF.
	Capacitor		100 MMF
	5th. Video IF		Includes Trap
	Crystal	110-384	1N60
	Sound Take-off Resistor		5.6KΩ
	Peaking	75-39	650 Microhenries
	Peaking	75-31	93 Microhenries
M5	4.5MC Trap	79-85	Video Plate Load Assembly Complete - Part # 279-69
	Peaking	75-45	213 Microhenries
	Resistor		22KΩ
	Resistor		27KΩ
	Resistor		5.1KΩ
	Resistor		33KΩ
	Resistor		27KΩ
	Peaking	75-46	330 Microhenries
	Capacitor		330 MMF.
M6	Switch	101-29	Local and Distance
M7	Switch	101-26	TV-Phono
M8	Focus Magnet		
M9	Ion Trap		
M10	Switch	100-72	High-Low Band

STROMBERG-CARLSON
MODEL C-1



STROMBERG-CARLSON
MODEL C-1

TRADE NAME	Stromberg-Carlson, Model C-1
MANUFACTURER	Stromberg-Carlson Co., 100 Carlson Rd., Rochester, New York
TYPE SET	AC Operated Superheterodyne Receiver with Loop Antenna
TUBES (FIVE)	Types 12BE6 Converter, 12BA6 IF Amp., 12AT6 DET.-AVC-AF, 50C5 Power Output, 35W4 Rectifier
POWER SUPPLY	110-120 Volts AC — RATING .25 Amp. at 117 Volts AC
TUNING RANGE—BROADCAST	540-1650KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer, turn tuning capacitor fully closed and set pointer parallel with base of dial.
Use isolation transformer, if available. If not, connect a .1MFD capacitor in series with low side of signal generator and B-.
Loop should be maintained in same relative position to chassis as when receiver is in cabinet.
Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.1MFD.	High side to stator on rear section of tuning gang. Low side to B-	455KC (400~ Mod.)	Tuning gang fully open.	Across voice coil.	A1, A2, A3, A4	Adjust for maximum output. If isolation transformer is not used, reduce dummy antenna to .001MFD to reduce hum modulation.
2.		Loop	1650KC	"	"	A5	Fashion loop of several turns of wire and radiate signal into loop of receiver Adjust for maximum output.
3.		Loop	1500KC	Tune for max. output.	"	A6	"

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PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: Stromberg-Carl PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RTMA BASE TYPE	INSTALLATION NOTES
V1	Converter	12BE6	12BE6	7CH	
V2	IF Amplifier	12BA6	12BA6	7BK	
V3	Det.-AVC-AF	12AT6	12AT6	7BT	
V4	Power Output	50C5	50C5	7CV	
V5	Rectifier	35W4	35W4	5BQ	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: Stromberg-Carl PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C1A	40	150	81779	PRS150/40-40-40		EDL44215		TVA-3451	Filter
B	40	150							Filter
C	20	150							Filter
C2	100	500	110291	1468-0001	D6-101	5W5T1	GP1K-101	1FM-31	Osc. Grid Cap.
C3	.05	400	110801	P488-05	DF-503	PTE4S5		4TM-S5	Fixed Trimmer
C4	.05	200	110801	P288-05	DF-503	PTE4S5		2TM-S5	AVC Filter
C5	100	500	110291	1468-0001	D6-101	5W5T1	GP1K-101	1FM-31	Diode RF Filter
C6	.005	200	110805	P688-005	D6-502	PTE6D5	GP2 333-502	6TM-D5	Audio Coupling
C7A	.005		♦81797						Audio Coupling
B	250								AF Amp. Plate
C									Power Output Grid
C8	.02	600	110542	P688-02	DF-203	PTE6S2		6TM-S2	Power Output Plate
C9	.05	400	110801	P488-05	DF-503	PTE4S5		4TM-S5	Rectifier Plate
C10	.1	400	110724	P488-1	DF-104	PTE4P1		4TM-P1	Line Isolation

♦ Items C7A, C7B, C7C, R6A, R6B are combined in one unit.
When replacing items separately, C7B and C7C should total 250MMF.

CONTROLS

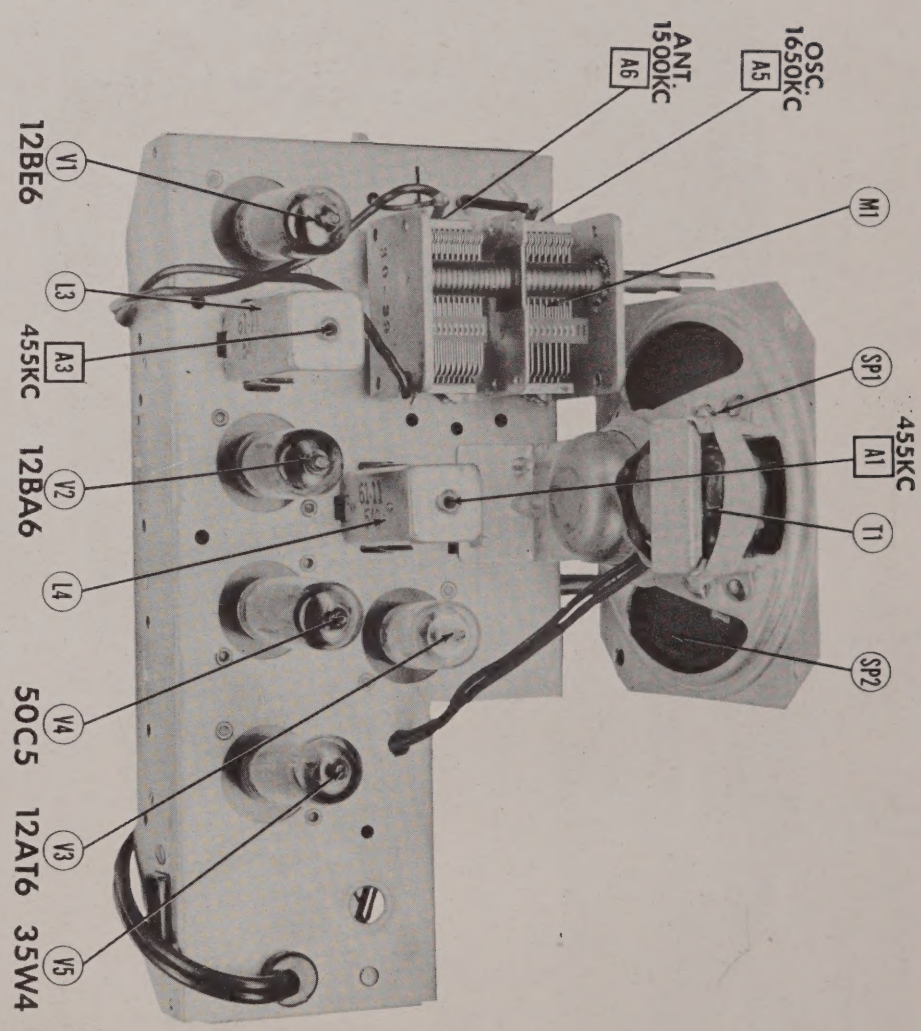
ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: Strom-Carl PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	INSTALLATION NOTES
R1A	500KΩ	½	81785	Q13-133	AG-60-Z	BSK-60-S	Volume Control
B	Shaft		Not req.	Not req.	KSS-3	Not req.	Attach to R1A per instructions
C	Switch		Not req.	76-1	SWB	Not req.	Attach to R1A per instructions

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: Stromberg-Carl PART No.	IRC PART No.	IDENTIFICATION CODES
R2	22KΩ	½	149109	BTS-22K	Osc. Grid
R3	150Ω	½	149096	BTS-150	IF Amp. Cathode
R4	2.2Meg	½	149121	BTS-2.2Meg	AVC Network
R5	10Meg	½	149125	BTS-10Meg	AF Amp. Grid
R6A	500KΩ	½	♦81797		AF Amp. Plate
B	500KΩ	½			Output Grid
R7	150Ω	½	149096	BTS-150	Output Cathode
R8	1500Ω	1	149134	BTA-1500	Filter
R9	100Ω	½	149095	BTS-100	Filter
R10	22Ω	½	149091		Rectifier Ballast

♦ Items R6A, R6B, C7A, C7B, C7C are combined in one unit.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		Stromberg-Carlson PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	
	PRI.	SEC.	PRI.	SEC.					
T1	3.2KΩ	3.6Ω	210Ω	.5Ω	81782	A-3332	A-3025	RO-2 ①	① Drill one new mounting hole.

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			Stromberg-Carlson PART No.	JENSEN PART No.	QUAM PART No.	
SP1	FIELD	V. C. IMP.	81784	ST113 Model P4-X	4A1	
	PM	3.6Ω				
SP2	CONE DIA.	V. C. DIA.				
	4"	9/16"				

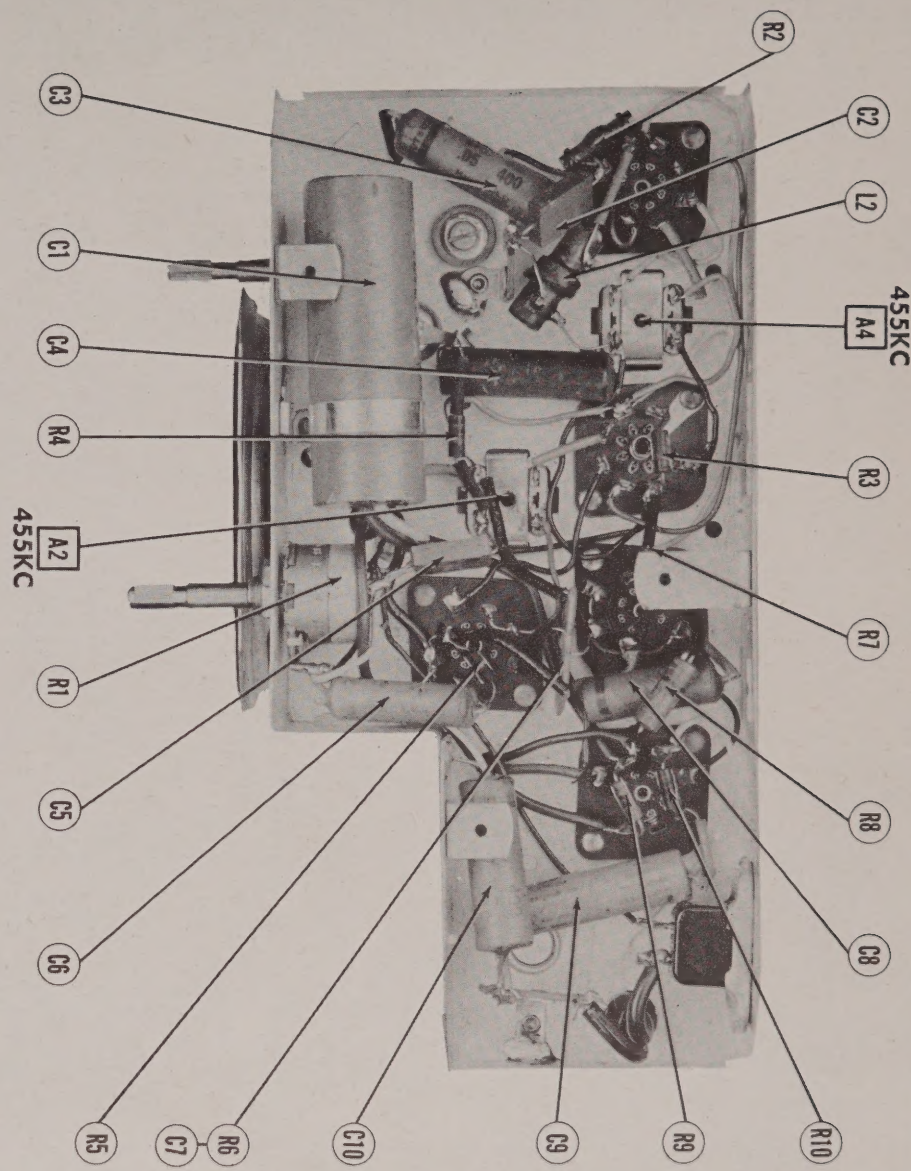
R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		
		PRI.	SEC.	Stromberg-Carlson PART No.		
L1	Loop Ant.	3.5Ω		81783		
L2	Osc. Coil	6.5Ω		81781		Tap .6Ω
L3	1st. IF	22Ω	22Ω	81782		
L4	2nd. IF	22Ω	22Ω	81782		

MISCELLANEOUS

ITEM No.	PART NAME	Stromberg-Carlson PART No.	NOTES
M1	2 Gang Var. Cap.	81778	(15-302MMF 14-157MMF)
	Cabinet	81777	
	Knob	81785	Volume
	Knob	81786	Tuning
	Knob	81776	Clock Controls

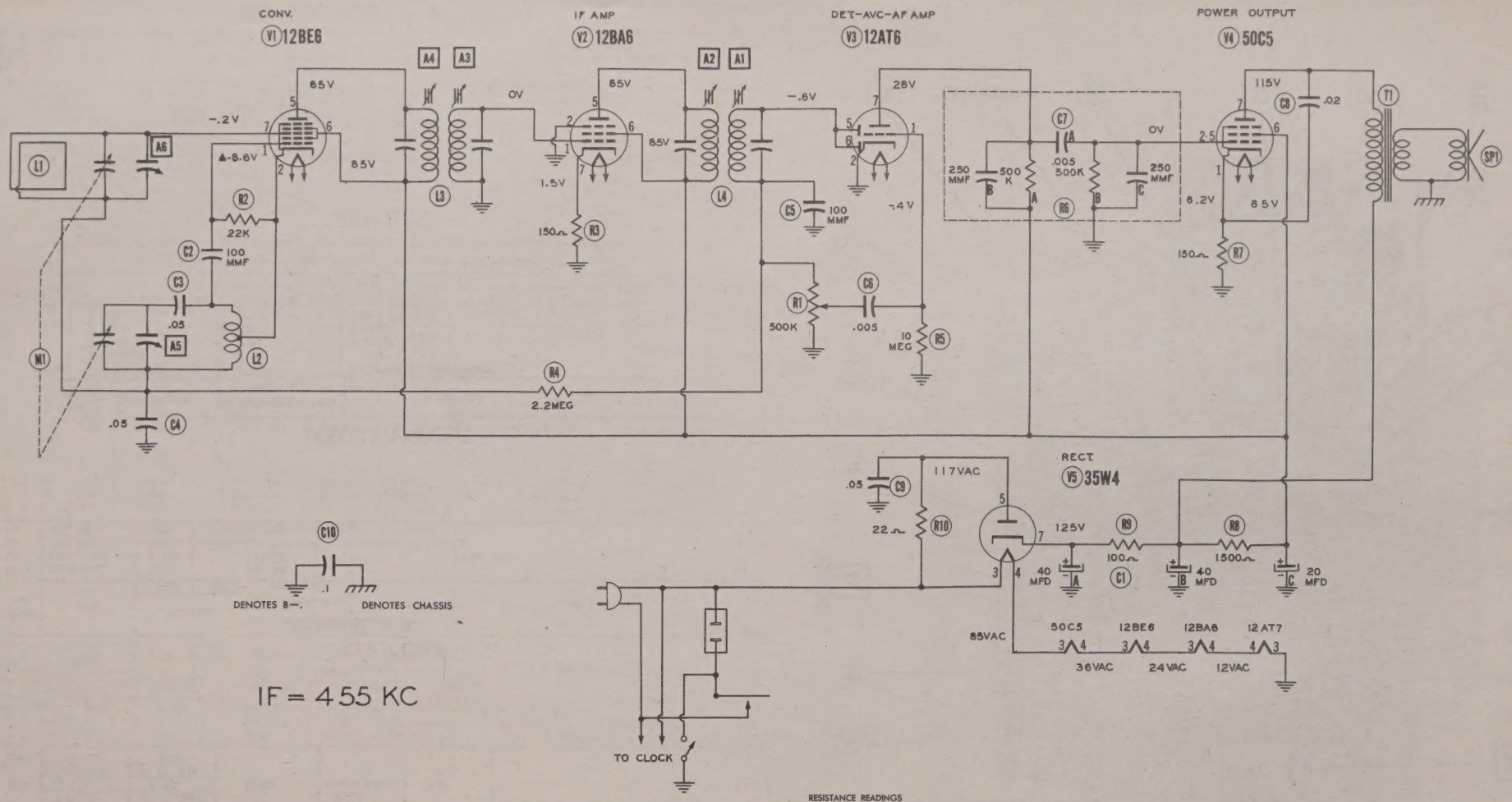
CHASSIS—BOTTOM VIEW



SET 153 FOLDER 14

STROMBERG-CARLSON MODEL C-1

STROMBERG-CARLSON MODEL C-1



IF = 455 KC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V 1	12BE6	22KΩ	.6Ω	36Ω	24Ω	†1.6KΩ	†1.6KΩ	2.7Meg
V 2	12BA6	22Ω	0Ω	24Ω	12Ω	†1.6KΩ	†1.6KΩ	150Ω
V 3	12AT6	10Meg	0Ω	0Ω	12Ω	500KΩ	500KΩ	†500KΩ
V 4	50C5	150Ω	500KΩ	85Ω	36Ω	500KΩ	†1.6KΩ	†310Ω
V 5	35W4	†310Ω	†100Ω	117Ω	85Ω	140Ω	105Ω	45KΩ

▲ TAKEN WITH VACUUM TUBE VOLTMETER
† MEASURED FROM PIN 7 OF V5

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of + 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.